UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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C&D ZODIAC, INC.
Petitioner

v.

B/E AEROSPACE, INC.
Patent Owner

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U.S. Patent No. 9,073,641
Filing Date: October 1, 2013
Issue Date: July 7, 2015
Title: **AIRCRAFT INTERIOR LAVATORY**

U.S. Patent No. 9,365,292
Filing Date: May 11, 2015
Issue Date: June 14, 2016
Title: **AIRCRAFT INTERIOR LAVATORY**

U.S. Patent No. 9,434,476
Filing Date: May 11, 2015
Issue Date: September 6, 2016
Title: **AIRCRAFT INTERIOR LAVATORY**

U.S. Patent No. 9,440,742
Filing Date: April 28, 2016
Issue Date: September 13, 2016
Title: **AIRCRAFT INTERIOR LAVATORY**

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*Inter Partes* Review Nos. Unassigned

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**Declaration of Alan Anderson Under 37 C.F.R. § 1.68**

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I, Alan Anderson, declare as follows:

## I. Introduction

1. My name is Alan Anderson, and I reside in Woodinville, WA. I am an independent consultant. I am over eighteen years of age, and I would otherwise be competent to testify as to the matters set forth herein if I am called upon to do so.

2. I submit this Declaration at the request of C&D Zodiac, Inc. for consideration by the Patent Trial and Appeal Board in the *Inter Partes* Reviews of U.S. Patent Nos. 9,073,641 ("the '641 patent"); 9,365,292 ("the '292 patent"); 9,434,476 ("the '476 patent"); and 9,440,472 ("the '472 patent") (collectively, "the challenged patents").

3. In forming my opinions, I rely on my knowledge and experience in the field and on documents and information referenced in this Declaration.

### A. Background and Expertise

4. My CV is shown in Exhibit A following the signature line of this declaration. I earned a Bachelor of Science in Mechanical Engineering from the University of Washington in 1968.

5. From 1968 to 2011, I was employed by The Boeing Company. I first joined Boeing as an engineering designer for aircraft interiors in 1968. I remained employed with Boeing for 43 years. In 1978, I was promoted to engineering

manager, responsible for managing engineering designers. In 1988, I was promoted to senior engineering manager, responsible for managing other engineering managers. In 1992, I was promoted to Chief Engineer for 747 and 767 Payload Systems, responsible for overseeing all engineering of the aircraft cabin. I was promoted to Director of Engineering, Payload Systems in 1999, where I oversaw all engineering for airplane interiors for all models of Boeing aircraft until my retirement in 2011. Additionally, I also served as Chief Engineer for Interiors for the development of the 787 Interior from 2002 until 2008.

6. During my 43 years with Boeing, I obtained significant, broad experience with the design and configuration of interiors of commercial aircraft. I have specific experience with layout of passenger accommodations ("LOPA") for aircraft. I also have specific experience with the design of aircraft enclosures, such as lavatories, closets, and galleys.

7. I am named as an inventor on U.S. Patent No. 7,222,820, entitled "Aircraft Lavatory."

8. I maintained an active Professional Engineer license in the State of Washington during my career with Boeing.

9. I have been retained by C&D Zodiac, Inc. ("C&D Zodiac") as an expert witness in the above referenced litigation. I worked as a technical consultant for C&D Zodiac from 2012-2014. No part of my compensation from

C&D Zodiac is dependent upon the outcome of these proceedings or any issue in these proceedings.

### B. Information Considered

10. In forming my opinions, in addition to my knowledge and experience, I have considered the following documents and things that I have obtained, or that have been provided to me:

- U.S. Patent No. 8,590,838 (herein "'838 patent") (attached as Exhibit 1017 to the Petitions for *inter partes* review).
- Prosecution history for the '838 Patent.
- U.S. Patent No. 9,434,476 (herein "'476 patent").
- Prosecution history for the '476 patent.
- U.S. Patent No. 9,365,292 (herein "'292 patent").
- Prosecution history for the '292 patent.
- U.S. Patent No. 9,440,742 (herein "'742 patent).
- Prosecution history for the '742 patent.
- U.S. Patent No. 9,073,641 (herein "'641 patent")
- Prosecution history for the '641 patent.
- Documents submitted during the *inter partes* review of the '838 patent, IPR2014-00727.
- Final Written Decision in the *inter partes* review of the '838 patent, IPR2014-00727 (attached as Exhibit 1003 to the Petitions for *inter partes* review)
- U.S. Patent No. 3,738,497 to Betts *et al*., ("Betts") (attached as Exhibit 1005 to the Petitions for *inter partes* review).

- McDonnell Douglas DC-10 Customer Configuration Summary (a/k/a Orange Book), revised October 1978 (attached as Exhibit 1020 to the Petitions for *inter partes* review).

- Crew Rest for KLM 747-400 Aircraft ("KLM Crew Rest") (attached as Exhibits 1006 and in Exhibit 1009 to the Petitions for *inter partes* review).

- U.S. Patent No. 4,884,767 to Shibata ("Shibata") (attached as Exhibit 1011 to the Petitions for *inter partes* review).

- U.S. Patent No. 6,742,840 to Bentley ("Bentley") (attached as Exhibit 1021 to the Petitions for *inter partes* review).

- U.S. Patent No. 7,284,287 to Cooper ("Cooper") (attached as Exhibit 1012 to the Petitions for *inter partes* review).

- U.S. 2009/0050738 A1 to Breuer ("Breuer") (attached as Exhibit 1013 to the Petitions for *inter partes* review).

- C&D Aerospace SAS S4 MD-90 Aft-Storage ("MD-90 Storage" or "S4 Storage") C&D0086593-94; C&D0075655-681 (attached as Exhibit 1018, at pages 19-20 and 49-75 to the Petitions for *inter partes* review).

- Heath Tecna Qantas 737 Storage ("737 Storage") C&D0075650, C&D0079852 (attached as Exhibit 1019, at page 10 to the Petitions for *inter partes* review)

- Heath Tecna Qantas 747 Storage ("747 Storage") C&D0075683, HT0001550 (attached as Exhibit 1019, at page 104 to the Petitions for *inter partes* review).

- Declaration of Vince Huard dated March 10, 2017 and supporting Exhibits (attached as Exhibit 1019 to this Declaration).

- Declaration of Scott Savian dated March 20, 2017 (attached as Exhibit 1018 to this Declaration)

- Declaration of Paul Sobotta submitted in IPR2017-00727, dated April 2, 2015 (attached as Exhibit 1007 to the Petitions for *inter partes* review).

- Transcript of March 15, 2017, Deposition of Robert Papke.

- Other documents cited herein.

## II. LEGAL STANDARDS FOR PATENTABILITY

11. In expressing my opinions and considering the subject matter of the claims of the ’292, ’476, ’641, and ’742 patents (collectively “the Challenged Patents”), I am relying upon certain legal principles that counsel has explained to me.

12. First, I understand that for an invention claimed in a patent to be found patentable, it must be, among other things, new and not obvious from what was known before the invention was made.

13. I understand the information that is used to evaluate whether an invention is new and not obvious is generally referred to as “prior art” and generally includes patents and printed publications (e.g., books, articles, product manuals, company publications, etc.).

14. I understand that in this proceeding C&D Zodiac, Inc. has the burden of proving that the claims of the patents-at-issue are anticipated by or obvious from the prior art by a preponderance of the evidence. I understand that “a preponderance of the evidence” is evidence sufficient to show that a fact is more likely true than it is not true.

15. I understand that in this proceeding, the claims must be given their broadest reasonable interpretation consistent with the specification. The claims

after being given their broadest reasonable interpretation are then to be compared to the information disclosed in the prior art.

16. I understand that in this proceeding, the information that may be evaluated is limited to patents and printed publications. My analysis below compares the claims to patents and printed publications that I understand are prior art to the patents-at-issue.

17. I understand that there are two ways in which prior art may render a patent claim unpatentable. First, the prior art can be shown to "anticipate" the claim. Second, the prior art can be shown to have made the claim "obvious" to a person of ordinary skill in the art. My understanding of the two legal standards is set forth below.

### A. Anticipation

18. I understand that a claimed invention is not patentable if it is anticipated by the prior art. I understand that the following standards govern the determination of whether a patent claim is "anticipated" by the prior art.

19. I understand that the "prior art" includes patents and printed publications that existed before the earliest filing date (the "effective filing date") of the patent. I also understand that a patent will be prior art if it was filed before the effective filing date, while a printed publication will be prior art if it was publicly available before that date.

20. I understand that, for a patent claim to be "anticipated" by the prior art, each and every requirement of the claim must be found, expressly or inherently, in a single prior art reference. I understand that a prior art reference inherently discloses a claim limitation if the limitation is necessarily present in the reference.

### B. Obviousness

21. I understand that a claimed invention is not patentable if it would have been obvious to a person of ordinary skill in the field of the invention at the time the invention was made. I understand that the following standards govern the determination of whether a claim in a patent is obvious.

22. I understand that to find a claim in a patent obvious, one must make certain findings regarding the claimed invention and the prior art. Specifically, I understand that the obviousness question requires consideration of four factors (although not necessarily in the following order):

- The scope and content of the prior art;
- The differences between the prior art and the claims at issue;
- The knowledge of a person of ordinary skill in the pertinent art; and
- Whatever objective factors indicating obviousness or non-obviousness may be present in any particular case.

23. I understand that the objective indicia that may bear on the question of obviousness or non-obviousness include whether the claimed invention proceeded

in a direction contrary to the accepted wisdom in the field, whether there was a long-felt but unresolved need in the field that was satisfied by the claimed invention, whether others had tried but failed to make the claimed invention, whether others copied the claimed invention, whether the claimed invention achieved any unexpected results, whether the claimed invention was praised by others, whether others have taken licenses to use the claimed invention, whether experts or those skilled in the field of the claimed invention expressed surprise or disbelief regarding the claimed invention, and whether products incorporating the claimed invention have achieved commercial success.

24. In addition, I understand that the obviousness inquiry should not be done in hindsight, but must be done using the perspective of a person of ordinary skill in the relevant art as of the effective filing date of the patent.

25. I also understand that under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. I also understand that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I further understand that the following are examples of other factors that may show obviousness:

- a combination that only unites old elements with no change in their respective functions is unpatentable. As a result, the combination of

familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results,

- a predictable variation of a work in the same or a different field of endeavor is likely obvious if a person of ordinary skill would be able to implement the variation,

- an invention is obvious if it is the use of a known technique to improve a similar device in the same way, unless the actual application of the technique would have been beyond the skill of the person of ordinary skill in the art. In this case, a key inquiry is whether the improvement is more than the predictable use of prior art elements according to their established functions,

- an invention is obvious if there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.

- inventions that were "obvious to try" — chosen from a finite number of identified, predictable solutions, with a reasonable expectation of success — are likely obvious,

- known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art, and

- an explicit teaching, suggestion, or motivation in the art to combine references, while not a requirement for a finding of obviousness, is a helpful insight in determining on which a finding of obviousness may be based.

26. Finally, I understand that even if a claimed invention involves more than substitution of one known element for another or the application of a known technique to a piece of prior art ready for improvement, the invention may still be obvious. I also understand that in such circumstances courts may need to look to interrelated teachings of multiple patents; the effects of demands known to the

design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art to determine if the claimed invention is obvious

## III. Person of Ordinary Skill in the Art

27. It is my opinion that the field of the Challenged Patents is aircraft interior design, specifically the design of aircraft enclosures, such as lavatories, closets, and galleys. [*See* '476 patent, 1:16-20].

28. It is my opinion that one of ordinary skill in the art as of April 20, 2010, the earliest claimed priority date of the Challenged Patents, would have had a bachelor's degree in mechanical engineering, industrial design, or a similar discipline, or the equivalent experience, with at least two years of experience in the field of aircraft interior design.

29. While a formal bachelor's degree is recited above in my definition, the term "equivalent experience" is meant to include a person who may have achieved the equivalent knowledge through years of experience in the field of aircraft interior design.

30. As I explain above, I have worked in the area of aircraft interior design for many years, and I consider myself to be at least a person of ordinary skill in the art.

## IV. Claim Interpretation

31. In coming to the opinions stated herein I have analyzed the claim terms and interpreted them to have their broadest reasonable construction consistent with the specification of the challenged patents. I reserve the right to provide supplemental opinions on the meaning of terms used by the claims.

## V. The Challenged Patents

32. Each of the four Challenged Patents is entitled "Aircraft Interior Lavatory" and has the same specification and figures. Each of the four Challenged Patents claims priority to Application No. 13/089,063, which issued as the '838 patent. The earliest claimed priority date of the '838 patent is the April 20, 2010 filing date of Provisional Application No. 61/326,198. Each of the prior art references I address herein was available prior to April 20, 2010, thus I have not analyzed whether each claim of the Challenged Patents is entitled to the claimed priority date.

33. According to the Background section of the Challenged Patents, prior art aircraft enclosures, such as lavatories or closets, had forward walls that are flat in a vertical plane. The Challenged Patents further explain that the prior art flat forward walls cause inefficient use of space when juxtaposed with the contoured seatback of passenger seats installed forward of the enclosures:

"Aircraft lavatories, closets and other full height enclosures commonly have forward walls that are flat in a vertical plane. Structures such as passenger seats installed forward of such aircraft lavatories, closets and similar full height enclosures often have shapes that are contoured in the vertical plane. The juxtaposition of these flat walled enclosures and contoured structures renders significant volumes unusable to both the function of the flat walled lavatory or enclosure and the function of the contoured seat or other structure."

['476 patent, at 1:24-32].

34. Figure 1 of the Challenged Patents depicts an example of a prior art installation of an enclosure with a flat forward wall aft of and adjacent to a typical prior art passenger seat:

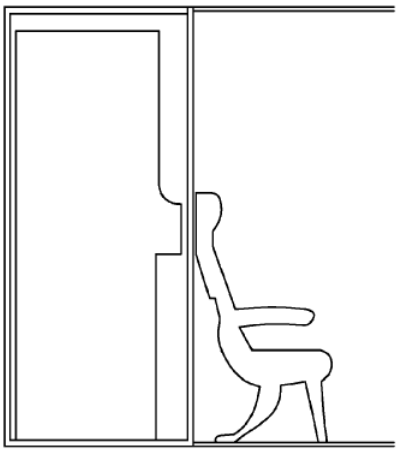


*FIG. 1*
*(Prior Art)*

35. The Background section of the Challenged Patents further provides that it would be desirable to provide for more efficient use of space in the aircraft

interior:

> "It would be desirable to provide an aircraft lavatory or other enclosure that can reduce or eliminate the gaps and volumes of space previously required between lavatory enclosures and adjacent structures to allow an adjacent structure such as passenger seating installed forward of the lavatory or other enclosure to be installed further aft, providing more space forward of the lavatory or enclosure for passenger seating or other features than has been possible in the prior art. Alternatively, the present invention can provide a more spacious lavatory or other enclosure with no need to move adjacent seats or other structures forward."

['476 patent, at 1:54-64].

36. The Challenged Patents provide a forward wall of an enclosure with an aft-extending recess to receive the aft portion of the passenger seat installed forward of the enclosure. The forward wall of the Challenged Patents is shaped to substantially conform to the shape of the passenger seat or other cabin structure immediately forward of the enclosure.

37. Figure 2 of the Challenged Patents is a schematic diagram of an installation of a lavatory "according to the present invention" that is immediately aft of a passenger seat:

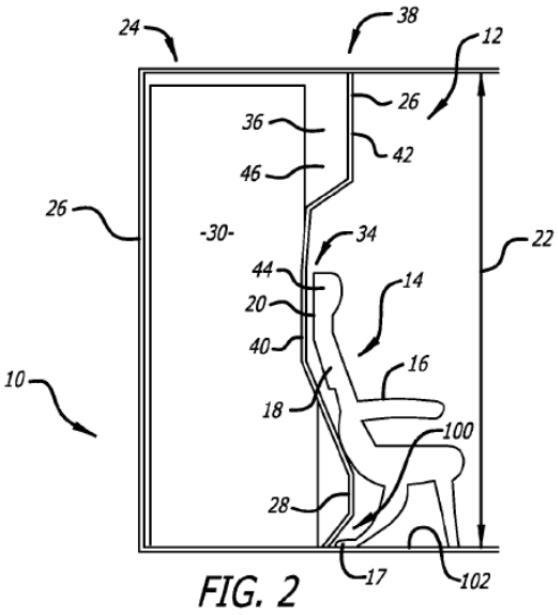


FIG. 2

38. Figure 2 is the only embodiment of the alleged invention depicted in the Challenged Patents. The only difference between Figure 1 (the prior art) and Figure 2 (the embodiment of the alleged invention) is the shape of the forward wall of the lavatory enclosure.

39. In a "preferred aspect" the Challenged Patents provide that the enclosure unit is a lavatory. ['476 patent, 2:53-55]. The specification does not, however, describe that the space-saving design of the forward wall is particularly suitable for lavatories as compared to other enclosure units. Instead, the specification of the '476 patent states that the forward wall is advantageous for lavatories or other enclosures, including closets or galleys. [*See* '476 patent, 2:17-22 ("Briefly, and in general terms, the present invention provides for an enclosure, such as a lavatory, an aircraft closet, or an aircraft galley, for example, for a cabin

of an aircraft including a structure having an aft portion with a substantially vertically extending exterior aft surface that is substantially not flat in a vertical plane."); 2:31-33 ("The enclosure unit can be a lavatory, an aircraft closet, or an aircraft galley, for example."); 4:18-22 ("the present invention provides for an enclosure 10, such as a lavatory for a cabin 12 of an aircraft (not shown), although the enclosure may also be an aircraft closet, or an aircraft galley, or similar enclosed or structurally defined spaces, for example.")].

40. Similarly, during prosecution of the '838 Patent, to which each of the Challenged Patents claims priority, the applicant did not distinguish between lavatories and other enclosures:

> "As is discussed in paragraph 0005 of the specification of the present application, it is desirable to provide an aircraft lavatory or other enclosure that can reduce or eliminate gaps and volumes of space such as would occur in Thompson after of the rear group of seats, to allow adjacent passenger seating installed forward of the lavatory or other enclosure to be installed further aft, providing more space forward of the lavatory or enclosure for passenger seating or other features that has been heretofore possible in the prior art."

['838 prosecution history, pp. 260-261 (April 3, 2013 Response to Non-Final Office Action)].

41. Thus, the Challenged Patents equate various types of aircraft enclosures and provides that their forward wall design would be suitable for any such enclosure.

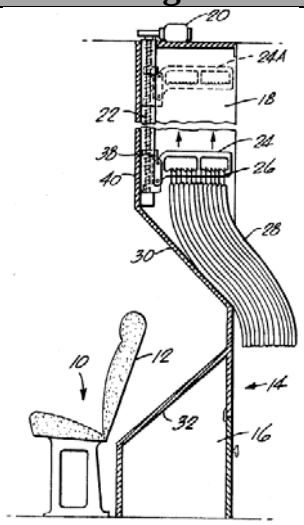
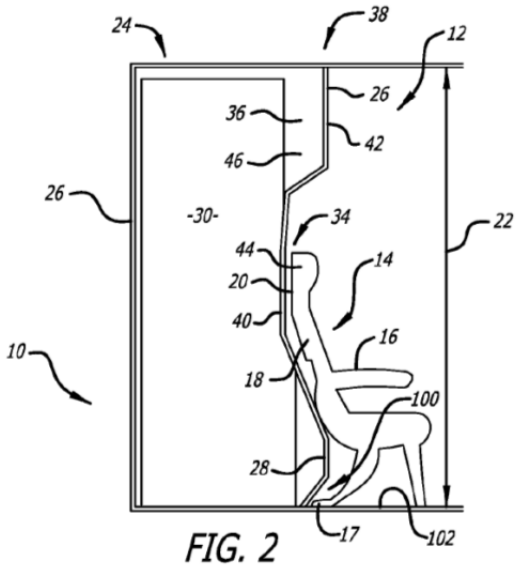
42. Further, the Challenged Patents describe the exterior, but do not describe interior fixtures, such as whether there is a toilet, plumbing, electrical systems, etc., which a person of skill in the art would know may be installed in the lavatory.

## VI. PRIOR ART

### A. U.S. Patent No. 3,738,497 to Betts ("Betts")

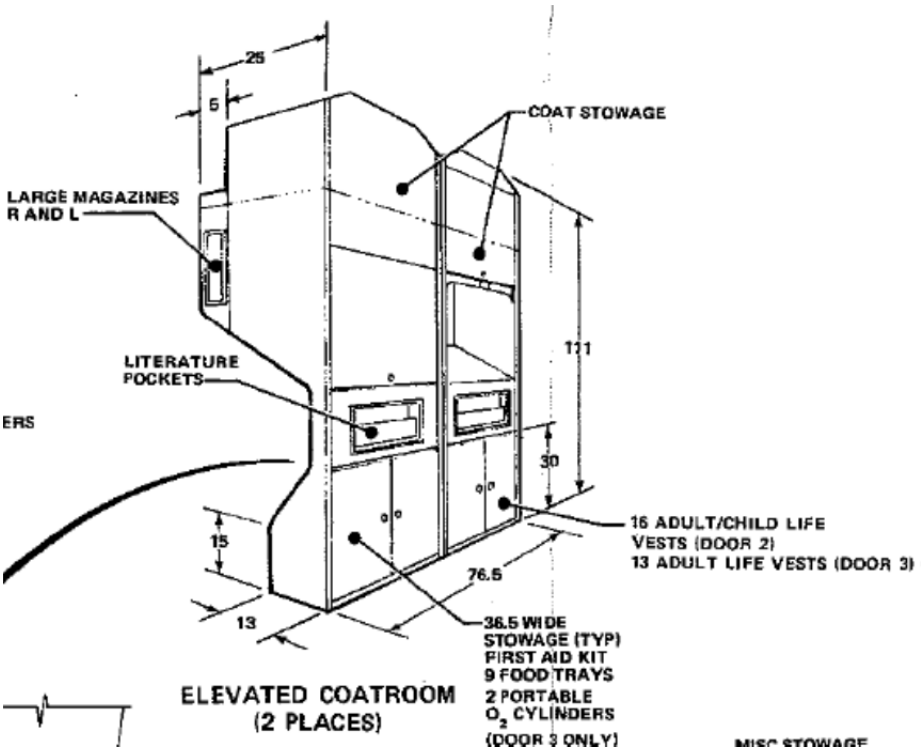
43. U.S. Patent No. 3,738,497 to Betts *et al*. ("Betts") is assigned to McDonnell Douglas Corporation and issued on June 12, 1973 from Application No. 148,459. This design was implemented and flown on commercial DC-10 aircraft. I understand that Betts qualifies as prior art to each of the Challenged Patents.

44. Figure 1 of Betts is a side elevation that shows an assembly of an overhead coat closet for a cabin of an aircraft that is located immediately aft of and adjacent to a passenger seat and is nearly identical to Figure 2 of the Challenged Patents:

| Betts Figure 1 | Challenged Patents Figure 2 |
| --- | --- |
|  |  |

45. Figure 1 of Betts is likely not drawn to scale. However, it shows the intended functionality of the concept disclosed in Betts. This concept includes a recessed wall to provide additional space for passengers in the cabin of an aircraft. *See* Betts, Abstract ("to provide more passenger room"); 1:6-7 ("provide more room for passengers in an aircraft or other vehicle"); 2:19-24 ("The lower portion 30 of the coat compartment 18 slants rearwardly to provide a space for seatback 12 to be tilted rearwardly as desired by the occupant. The top 32 of storage space 16 also slants rearwardly so as not to interfere with seatback 12 when tilted."). The passenger seat back shown in Figure 1 closely conforms to the shape of the recess in the forward wall of the enclosure. A person of ordinary skill in the art would understand that the Betts coat closet includes walls forming an enclosure of the closet.

46. The Betts closet was installed on DC-10 aircraft. I saw the Betts closet as a passenger on at least one commercial flight. I have reviewed the DC-10 Customer Configuration Summary, which was an Exhibit in the inter partes review of the '838 patent. *See* McDonnell Douglas DC-10 Customer Configuration Summary, revised October 1978, attached as Exhibit 1004 to IPR2014-00727. This documents shows the commercial embodiment of the Betts closet, which I have pasted below. I do not rely on this commercial embodiment in coming to my conclusion that the Challenged Patents are invalid. However, its commercial embodiments confirm my understanding and memory of the concept disclosed in Betts. The image below is captured from page 145 of the document.



### B. Crew Rest for KLM 747-400 Aircraft ("KLM Crew Rest")

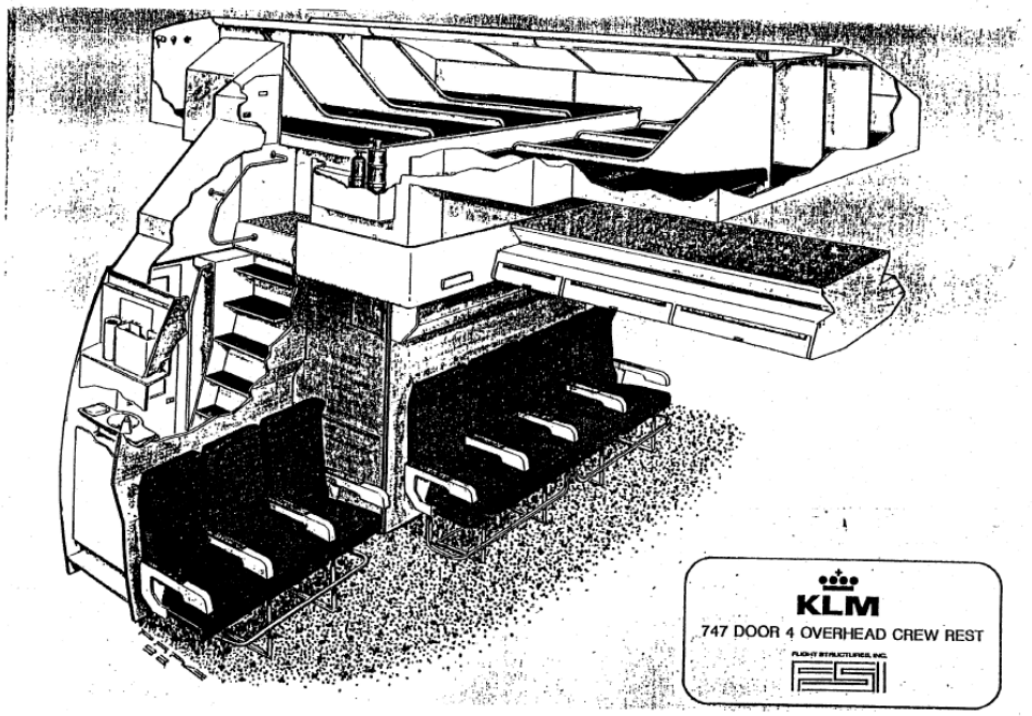
47. I understand that on or about 1991 FSI was awarded a contract to develop a crew rest for Royal Dutch Airlines, better known as KLM. Sobotta Declaration, at ¶ 7. Specifically, FSI was awarded a contract to develop an overhead crew rest for KLM's 747-400 aircraft. FSI developed the KLM Crew Rest during 1991 and 1992. Sobotta Declaration, at ¶ 7.

48. The KLM Crew Rest was designed to include overhead berths in the overhead space of KLM's 747-400 aircraft for crew members to rest and sleep during lengthy flights. Sobotta Declaration, at ¶ 9. Including these overhead berths allowed crew members to rest outside of the passenger area. This increased the space available to passengers in the passenger area, and thus increased the amount of revenue space in the aircraft. The airline could use this space to include additional seats or more space for seats with more recline and leg room.

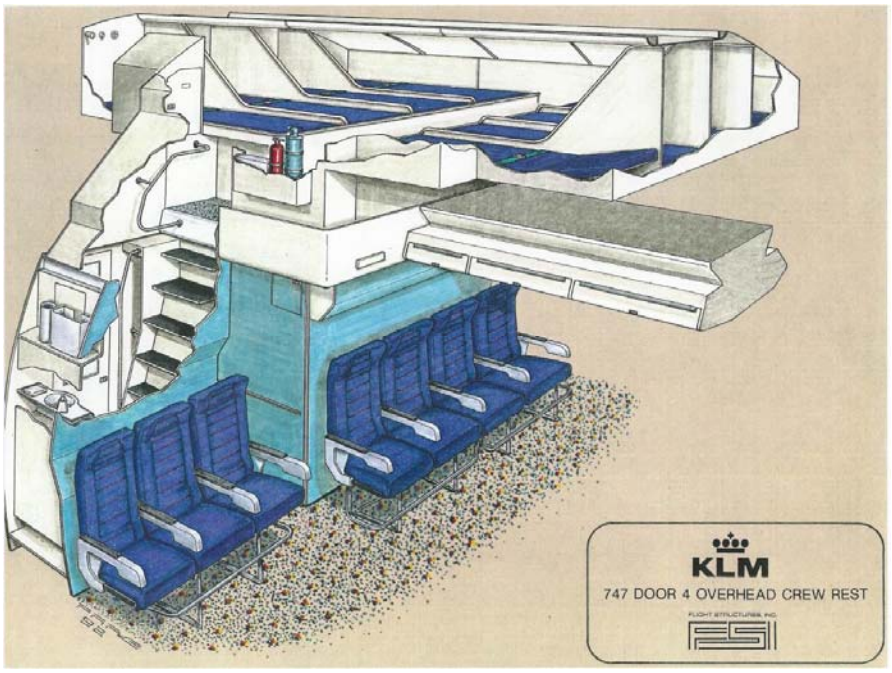
49. I understand that to provide crew member access to the overhead crew rest, FSI designed an entry in front of door 4 (i.e., the fourth door from the front of the aircraft) on the right side of the aircraft. The entry was modeled on a lavatory envelope (i.e., the outer walls forming a lavatory enclosure) and was located at a typical location for a lavatory on a 747-400 aircraft. Sobotta Declaration, at ¶ 10. To provide entry to the overhead crew rest, the interior of lavatory envelope was modified to include a staircase in place of a toilet, which allows crew to access the

overhead space. Sobotta Declaration, at ¶ 10.

50. I understand that the crew rest, including the recessed forward wall of the crew rest entry, was put into service on or about November 9, 1992, and was manufactured in Arlington, Washington. Sobotta Declaration, at ¶ 19. I understand that this product, referred to herein as the KLM Crew Rest qualifies as prior art to each of the Challenged Patents. A rendering of the prior art KLM Crew Rest is shown below.




51. An additional rendering of the KLM Crew Rest is shown below:




## VII. SUMMARY OF OPINIONS

52. As explained in further detail in the following paragraphs, in my opinion at least the following claims are invalid in view of both: (1) a prior art flat wall lavatory in view of Betts; and (2) a prior art flat wall lavatory in view of the KLM Crew Rest:

- claims 1-12 of U.S. Patent No. 9,365,292;
- claims 1-6 of U.S. Patent No. 9,434,476;
- claims 1, 3-10, and 12-17 of U.S. Patent No. 9,073,641; and
- claims 8 and 10-16 of U.S. Patent No. 9,440,742.

### A. Flat Wall Lavatories were Well-Known Prior Art.

53. A flat wall lavatory was well known in the art prior to the earliest claimed priority date of the Challenged Patents. Figure 1 of the Challenged

Patents shows a flat wall lavatory and states that such a lavatory was "prior art." '476 Patent at col. 4:6-8 ("FIG. 1 is a schematic diagram of a prior art installation of a lavatory immediately aft of and adjacent to an aircraft passenger seat.")

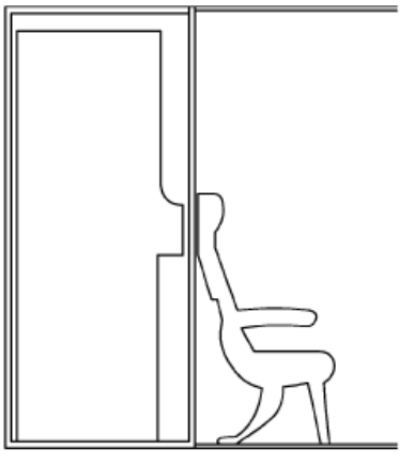
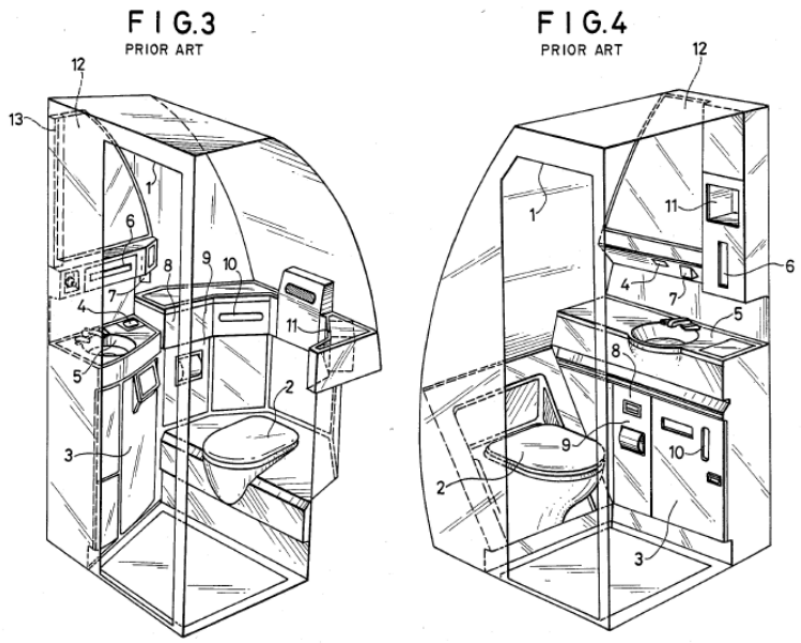


FIG. 1
(Prior Art)

54. Further, the Challenged Patent's description includes additional admissions that such lavatories were known prior art. "Aircraft lavatories, closets and other full height enclosures commonly have forward walls that are flat in a vertical plane." '476 Patent at col. 1:24-26.

55. To the extent that the Challenged Patents do not expressly admit that flat wall lavatories were well known in the art, it is clear from U.S. Patent No. 4,884,767 to Shibata ("Shibata") that flat wall lavatories were well known in the art. Shibata issued in 1989 and includes Figures showing flat wall lavatories, which it admits were prior art as of its filing date, 1988.




### B. It Would Have Been Obvious to Modify a Prior Art Flat Wall Lavatory to Include the Curved Forward Wall Shown in Betts

56. As discussed above, a flat wall lavatory was well known in the prior art before the earliest claimed priority date of the Challenged Patents. In my opinion it would have been obvious to one of ordinary skill in the art to modify a prior art flat wall lavatory to include a curved forward wall like the wall shown in Betts.

57. A primary goal of the design of interiors of commercial aircraft is efficient use of valuable passenger cabin space. Efficient use of space allows an aircraft to accommodate more passengers and/or to accommodate passengers more comfortably, thereby increasing the utility of the aircraft. As of April 2010, a primary motivation of one of ordinary skill in the art of aircraft interior design would have been to make efficient use of space in the aircraft interior cabin.

58. The curved forward facing wall shown in Betts advantageously provides additional space to locate a seat further aft in an aircraft. Betts says that the coat hanger rack is elevated to "provide more room for passengers in an aircraft." Betts, 1:5-7, Abstract ("A coat hanger rack silently elevated above passenger seats to store coats overhead and to provide more passenger room."). As shown in the figure below, the seat shown in Betts could not be located in the position in which it is shown if the forward wall were flat. Thus, this curved forward wall makes more efficient use of the valuable space in the aircraft passenger cabin than would be available with a flat forward wall.

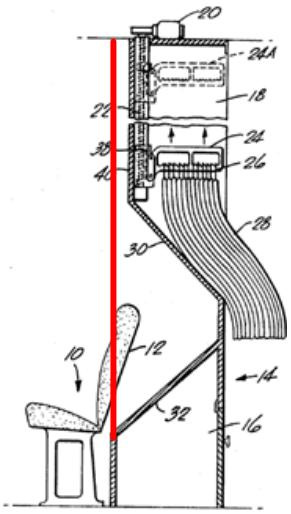



Fig. 1

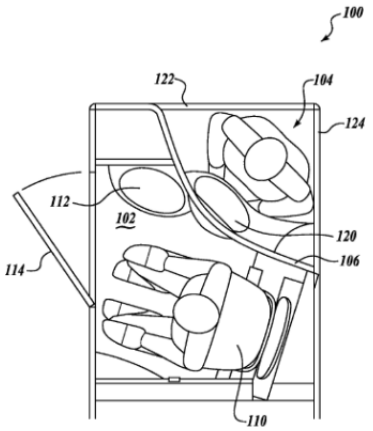
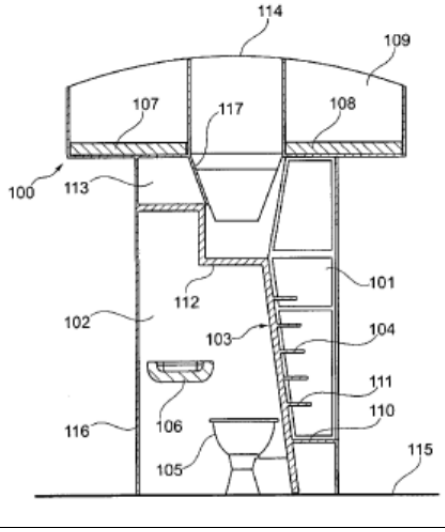
59. Further, one of ordinary skill in the art would understand that the forward wall of the enclosure shown in Betts would also be suitable for use with other aircraft enclosures, including lavatories. In an aircraft, as you move a row of seats further aft, the first thing that would make contact with a flat wall is the top

of the back of the seat. For this reason, Betts includes a recess to receive that portion of the seat back. Including the curved wall of Betts in a lavatory would achieve the same benefit, allowing the row of seats placed immediately in front of that curved wall to be placed further aft. A person of ordinary skill in the art would have been motivated to apply the curved wall of Betts to a lavatory to achieve that same benefit. Thus, combining different types of enclosures and employing different types and designs of recesses would have been obvious to one of skill in the art.

60. I understand that Patent Owner has asserted that one of ordinary skill in the art would not apply a curved wall to a lavatory because it would take up interior space in the lavatory. I disagree with this assertion for a number of reasons. First, one of ordinary skill in the art would understand that applying a recess to a forward wall of a lavatory would not necessarily take up interior space passenger space in the lavatory. Further, the Challenged Patents themselves make clear that the design may actually "provide a more spacious lavatory," and thus the design is not required to encroach on on the space of the passenger. *See* '476 Patent at 1:62-64 ("Alternatively, the present invention can provide more spacious lavatory or other enclosure with no need to move adjacent seats or other structures forward.").

61. In addition, other prior art references clearly show a lavatory wall that

is either curved or slanted could be used in an aircraft lavatory. Two examples are shown below:

| **US 7,284,287 to Cooper ("Cooper")** | **U.S. 2009/0050738 A1 to Breuer ("Breuer")** |
|---|---|
|  |  |





62. I am informed that both Cooper and Breuer are prior art to the Challenged Patents, and both make clear that it was well known in the art to use curved or slanted lavatory walls in aircraft lavatories prior to the filing date of the Challenged Patents.

63. Over the course of my career, lavatory manufacturers have tended to decrease the size of lavatories. For example, aircraft designs in the 1960s and 1970s often included space for passengers to change clothes. Over time as additional seats were included on the aircraft, lavatory space shrunk. Using a curved wall on a lavatory is just the next logical step in this progression as airlines accept smaller lavatories.

64. Further, a person of ordinary skill in the art would recognize that many aircraft already include smaller lavatories, such as those in the forward area of the aircraft cabin. These lavatories are often smaller due to the curvature of the aircraft. One example is the 737, which often has a lavatory directly behind the cockpit. This lavatory has a smaller depth than lavatories at the rear of the aircraft, in part because of the curvature of the shaped exterior of the front of the aircraft.

### C. It Would Have Been Obvious to Modify a Prior Art Flat Wall Lavatory to Include the Curved Forward Wall Shown in the KLM Crew Rest

65. As discussed above, a flat wall lavatory was well known in the prior art before the earliest claimed priority date of the Challenged Patents. In my opinion it would have been obvious to one of ordinary skill in the art to modify a prior art flat wall lavatory to include a curved forward wall like the forward wall shown in the KLM Crew Rest.

66. A primary goal of the design of interiors of commercial aircraft is efficient use of valuable passenger cabin space. Efficient use of space allows an aircraft to accommodate more passengers and/or to accommodate passengers more comfortably, thereby increasing the utility of the aircraft. As of April 2010, a primary motivation of one of ordinary skill in the art of aircraft interior design would have been to make efficient use of space in the aircraft interior cabin. The curved forward facing wall shown in the KLM Crew Rest advantageously provides

additional space to locate a seat further aft in an aircraft. The recess in the KLM Crew Rest was designed to allow the last row of seats in front of the curved wall to sit further aft in the aircraft while still having the ability to recline. Sobotta Declaration, at ¶ 13. Were recline not required, a person of ordinary skill in the art also would understand that a recessed forward wall could be provided to receive the seat back of an unreclined passenger seat, allowing it to be placed further aft than would be possible with a flat wall design.

67. The seat in the KLM Crew Rest could not be located in the position in which it is shown if the forward wall were flat, because a flat wall would restrict the passenger's ability to recline the seat, which was not permitted by the customer requirements for the KLM Crew Rest. Sobotta Declaration, at ¶ 12. One of ordinary skill in the art would understand that the forward wall of the enclosure used by the KLM Crew Rest would be suitable for use in a lavatory, at least because the KLM Crew rest itself is based on a lavatory envelope, without a toilet, but including "a lavatory sink (and related plumbing), lighting, a mirror, soap dispenser, shaver outlet and amenity stowage." Sobotta Declaration, at ¶ 16.

68. Further one of ordinary skill in the art would recognize that in an aircraft, as you move a row of seats further aft, the first thing that would make contact with a flat wall is the top of the back of the seat. For this reason, the KLM Crew Rest includes a recessed forward wall that receives that portion of the seat

back. Including the curved wall of the KLM Crew Rest allows the row of seats placed immediately in front of that curved wall to be placed further aft. Thus, combining different types of enclosures (e.g., a flat wall lavatory with the curved wall lavatory design of the KLM Crew Rest) and employing different types and designs of recesses would have been obvious to one of skill in the art.

69. Further, one of the designers of the KLM Crew Rest, Robert Papke, confirmed during direct testimony elicited by attorneys for B/E Aerospace that this curved wall of the KLM Crew Rest was the really logical way to allow seats to be placed further aft in an aircraft. *See* Papke Tr. at 190:1-11

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**Q. When you developed the vestibule with the indentation in it, was your design motivated by some prior system?**

MR. REED: Object to form.

THE WITNESS: No. It was defined by the need or the requirements of the airline to provide their recline. There was only one really logical way to get there and still have a usable space for access into the crew rest and provide the closet space that they requested adjacent to the stair housing -- or staircase, itself.

70. For the reasons discussed above, BE's arguments for why a lavatory would not use a curved wall are both incorrect. Other prior art references clearly show a lavatory wall that is either curved or slanted could be used in an aircraft lavatory. *See, e.g.*, Cooper and Breuer.

71. Further, as I explain above, over the course of my career, lavatory

manufacturers have tended to decrease the size of lavatories. For example, aircraft designs in the 1960s and 1970s often included space for passengers to change clothes. Over time as additional seats were included on the aircraft, lavatory space shrunk. Using a curved wall on a lavatory is just the next logical step in this progression as airlines accept smaller lavatories.

72. Further, a person of ordinary skill in the art would recognize that many aircraft already include smaller lavatories, such as those in the forward area of the aircraft cabin. These lavatories are often smaller due to the curvature of the aircraft. One example is the 737, which often has a lavatory directly behind the cockpit. This lavatory has a smaller depth than lavatories at the rear of the aircraft, in part because of the curvature of the shaped exterior of the front of the aircraft.

### D. It Would Have Been Obvious to Modify a Prior Art Flat Wall Lavatory to Include a Lower Recess to Receive Seat Supports.

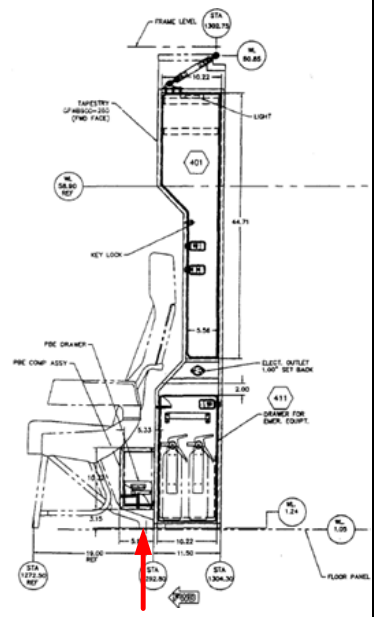
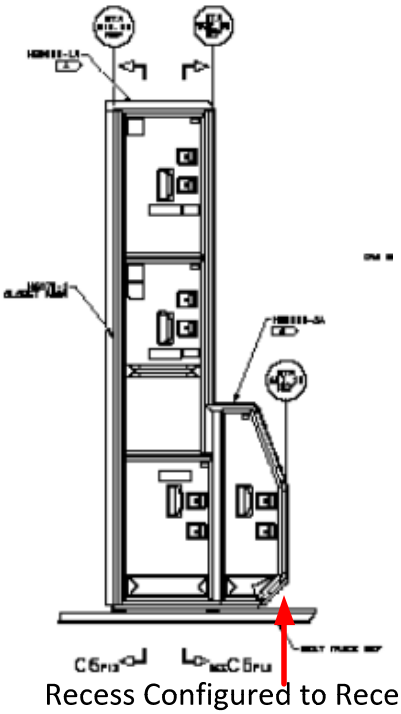
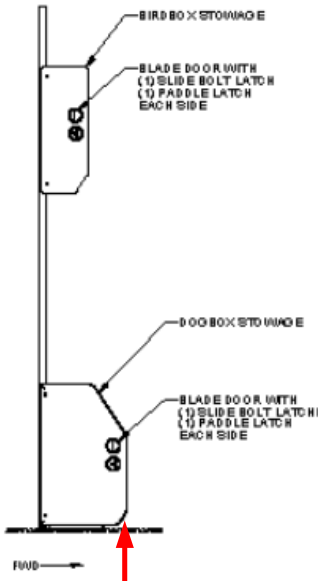
73. As discussed above, a flat wall lavatory was well known in the prior art before the earliest claimed priority date of the Challenged Patents. In my opinion it would have been obvious to one of ordinary skill in the art to modify a prior art flat wall lavatory to include a recess in the lower part of the wall to receive seat supports.

74. As discussed above, as of April 2010, a primary motivation of one of ordinary skill in the art of aircraft interior design would have been to make efficient use of space in the aircraft interior cabin. One way to accomplish a more

efficient use of space is to reduce the space between seats and monuments in the aircraft (e.g., walls for closets or lavatories). Prior art seats vary in terms of the distance that the seat supports extend in the aft direction. As seats are moved closer to these monuments, the rearmost component of the seat may impact the monument. As discussed above, a person of ordinary skill in the art would recognize that as a seat is moved further aft the seat support necessarily is also moved further aft. As the seat is moved aft the feet of the seat support may come into contact with the lower section of the wall. Creating one or more recesses to accommodate whatever portion(s) of the seat support that would contact the forward wall of the enclosure is the obvious solution to this known problem.

75. Many prior art monuments included a lower recess to accommodate the rear seat support. The images of the MD-90 Storage, 737 Storage, and 747 Storage enclosure units are three examples of enclosure units with a floor-level recess to allow seat supports to be positioned further aft in the cabin. I understand that each of these designs is prior art but that these designs are not available as prior art in this proceeding even though they pre-date the earliest priority date for the Challenged Patents. Thus, I do not rely on these designs as a basis for invalidity. However, these designs inform my opinion by confirming that lower recesses were a well-known solution to provide space for seat supports where a recess for a seat back in the forward wall of the enclosure unit permitted the seat to

be located further aft. Thus, floor-level recesses for seat supports would have been obvious to a person of ordinary skill in the art.

| MD-90 Storage | 737 Storage | 747 Storage |
|---|---|---|
|  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |

76. With regard to the SAS S4 Aft-Storage for the MD-90 ("MD-90 Storage" or "S4 Storage"), I understand that on or around September and October 2004 C&D Aerospace shipped stowage assemblies incorporating a curved wall design (called the S4 enclosure) to Scandinavian Airlines System (better known as "SAS") and that this product was shipped from a C&D facility in California. Savian Declaration, at ¶¶ 11-15. I also understand that on or around August 2001 C&D Aerospace offered these S4 enclosures for sale to SAS. Savian Declaration,

at ¶¶ 11-15. As is shown in the figure above, the MD-90 Storage includes a wall with a forward facing recess to receive a seatback when the seat is in an unreclined position. The MD-90 Storage also includes a lower recess configured to receive the rear seat legs. The two recesses enable the seat to be positioned further rearward than they would be positioned if the face of the wall were flat. Further, a tie rod is visible indicating that the MD-90 Storage is affixed to the top of the ceiling.

77. With regard to the Heath Tecna Qantas 737 Storage ("737 Storage"), I understand that on or around February 9, 2004, Heath Tecna offered to sell a design for a curved wall stowage assembly to Qantas for use in the Boeing 737 aircraft. *See* Huard Decl. at ¶¶ 8-16. I understand that this product, which I refer to as the 737 Storage, qualifies as prior art to each of the Challenged Patents. A drawing of the prior art 737 Storage is shown above. As is shown above, the 737 Storage includes a lower recess configured to receive the rear seat legs. This recess allows a seat to be positioned closer to the front face of the wall than would be possible if the wall were flat. I note that the lower storage shown above is not a doghouse attached to the front of a flat-walled closet, but rather an integral part of the enclosure. Indeed, it is clear from the drawing that this is a unified structure. Further, I understand that the forward wall is shaped to conform to the shape of a passenger seat located immediately in front of the forward wall shown above.

Huard Decl. at ¶ 10. Further, as shown above, the forward wall is contoured to include a chamfer that forms a recess at floor level to receive passenger seat legs. Huard Decl. at ¶ 10.

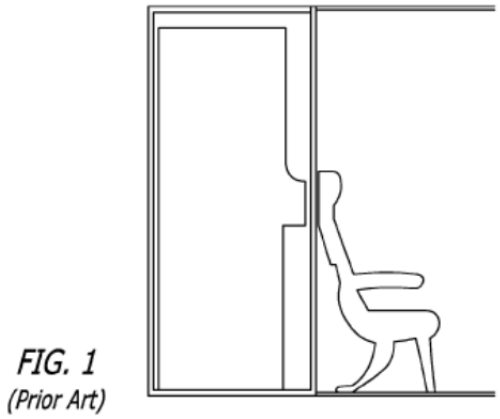
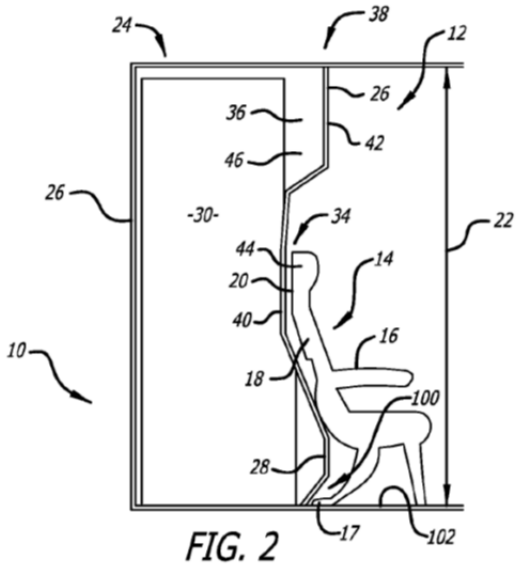
78. With regard to the Heath Tecna Qantas 747 Storage ("747 Storage"), I understand that on or around December 14, 2009, Heath Tecna sold a design for a curved wall stowage assembly to Qantas for use in the Boeing 747 aircraft. See Huard Decl. at ¶¶ 8-16. I understand that this product, which I refer to as the 747 Storage, qualifies as prior art to each of the Challenged Patents. A rendering of the prior art 747 Storage is shown above. As is shown above, the 747 Storage includes a lower recess configured to receive the rear seat legs. This recess allows a seat to be positioned closer to the front face of the wall than would be possible if the wall were flat.

79. A person of ordinary skill in the art would be motivated to modify a flat wall lavatory or a flat wall lavatory modified as discussed above to include a recess in the lower part of the wall. This modification provides for the predictable result of more efficient use of space, allowing for more seats in a cabin by moving the aftmost row further aft in the cabin.

### E. Airplane Seats were Well Known in the Prior Art and It would have been Obvious to Position a Known Airplane Seat in Front of a Curved Wall Lavatory

80. Airplane seats were well known in the art before the earliest claimed

priority date of the Challenged Patents. The Challenged Patents admit that passenger seats were well known in the art. The seat shown in Figure 1 (prior art) of the Challenged Patents is the same as the seat shown in Figure 2. As reflected in the Challenged Patents, the shape of passenger seats was known to a person of ordinary skill in the art.

| Challenged Patents Figure 1 (Prior Art) | Challenged Patents Figure 2 |
|---|---|
|  FIG. 1 (Prior Art) |  FIG. 2 |

81. Further, both Betts or the KLM Crew Rest shows an airplane passenger seat. Each of these seats include well known components, e.g., "a seat back with an exterior aft surface that is substantially not flat," "a seat bottom," "seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin."

82. Further, to the extent any of these aspects of a passenger seat are not

fully disclosed in the above references, they are plainly shown in U.S. Patent No. 6,742,840 to Bentley ("Bentley"). Bentley issued on June 1, 2004, and I understand that Bentley is prior art to each of the Challenged Patents. Bentley describes an adjustable airplane seat, which is substantially the same as the seat shown in Figures 1 and 2 of the Challenged Patents. Figures 2A-C and 5 from the prior art Bentley patent are shown below.

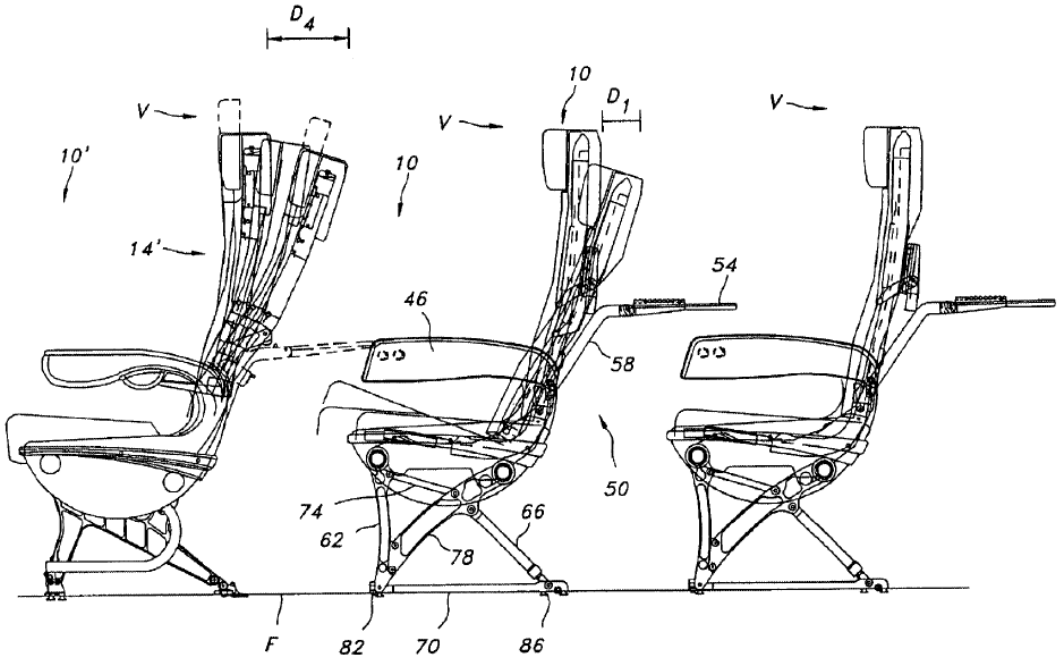



FIG. 2A FIG. 2B FIG. 2C

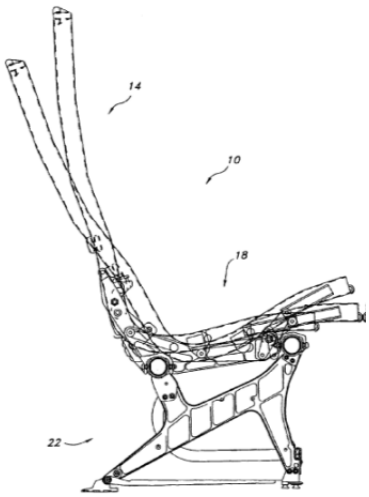
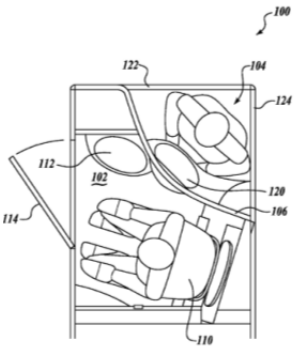
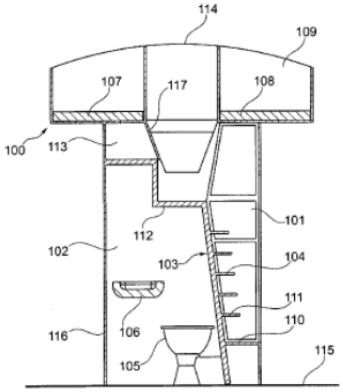
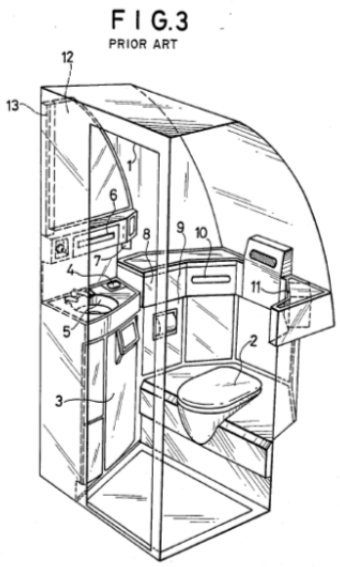



FIG 5

83. Further, to the extent a seat is not disclosed by the references above, it would have been obvious to a person of ordinary skill in the art to substitute the seat shown in either Betts or the KLM Crew Rest with either the prior art seat shown in Figure 1 of the Challenged Patents or the seat shown in Bentley. A person of ordinary skill in the art would recognize that airplane seats are configured to be coupled to a seat track and are therefore moveable and removable/replaceable. A person of ordinary skill in the art necessarily would configure the shape of an enclosure to conform to the shape of a passenger seat to be located adjacent to the enclosure. A person of ordinary skill in the art further would recognize that seats are often replaced, e.g., to provide additional passenger comfort and/or to update seat technology. This replacement has the predictable result of providing a new seat in the aircraft.

### F. It is Well Known in the Prior Art that a Lavatory Could Include a Toilet

84. As I note above, the Challenged Patents do not include a description of the toilet or plumbing required to operate a toilet. Indeed, the Challenged Patents provide no description of the configuration of the interior components of the lavatory. Installing a toilet in airplane lavatory was well known to one of ordinary skill in the art prior to the earliest claimed priority date of the Challenged Patents. Boeing commercial aircraft were outfitted with toilets in flat-walled lavatories long before the time I started working at Boeing in 1968. A person of ordinary skill in the art would recognize that a toilet could be installed in an airplane lavatory. As three examples, Cooper, Breuer, and Shibata show an airplane lavatory that includes a toilet. Cooper explains that "Persons Wishing to use the sink 112 or the toilet 110 in the first section 102 may do so Without preventing others from using the urinal 120 within the second section 104." Similarly, Breuer states "the distance between the first region and the floor of the module is less than 180 cm, for example even less than 150 cm or 130 cm, such that the use of a toilet seat in that region is possible but erect standing is not possible." Breuer at [0007]. Similarly, Shibata states "Items installed within the lavatory module are lavatory equipments including a toilet bowl, a washstand, a toilet closet for storing amenities ...." Shibata at col. 1:19-21.

| Cooper | Breuer | Shibata |
|---|---|---|
|  |  |  |

85. A person of ordinary skill in the art would therefore realize the a lavatory with a curved wall could include a toilet. For example, Cooper shows a curved wall lavatory that includes a toilet. Including a toilet on a curved wall lavatory is nothing more than the inclusion of elements known in the prior art for their intended use and achieves the predictable result of making a toilet available to passengers of an aircraft that includes a curved wall lavatory.

### G. Admitted Prior Art

86. As noted above, the Challenged Patents admit that everything shown in Figure 1 is prior art. Many of the features found in the claims are anticipated or obvious in view of this admitted prior art. A summary of the admitted prior art shown in Figure 1 is in the graphic below.

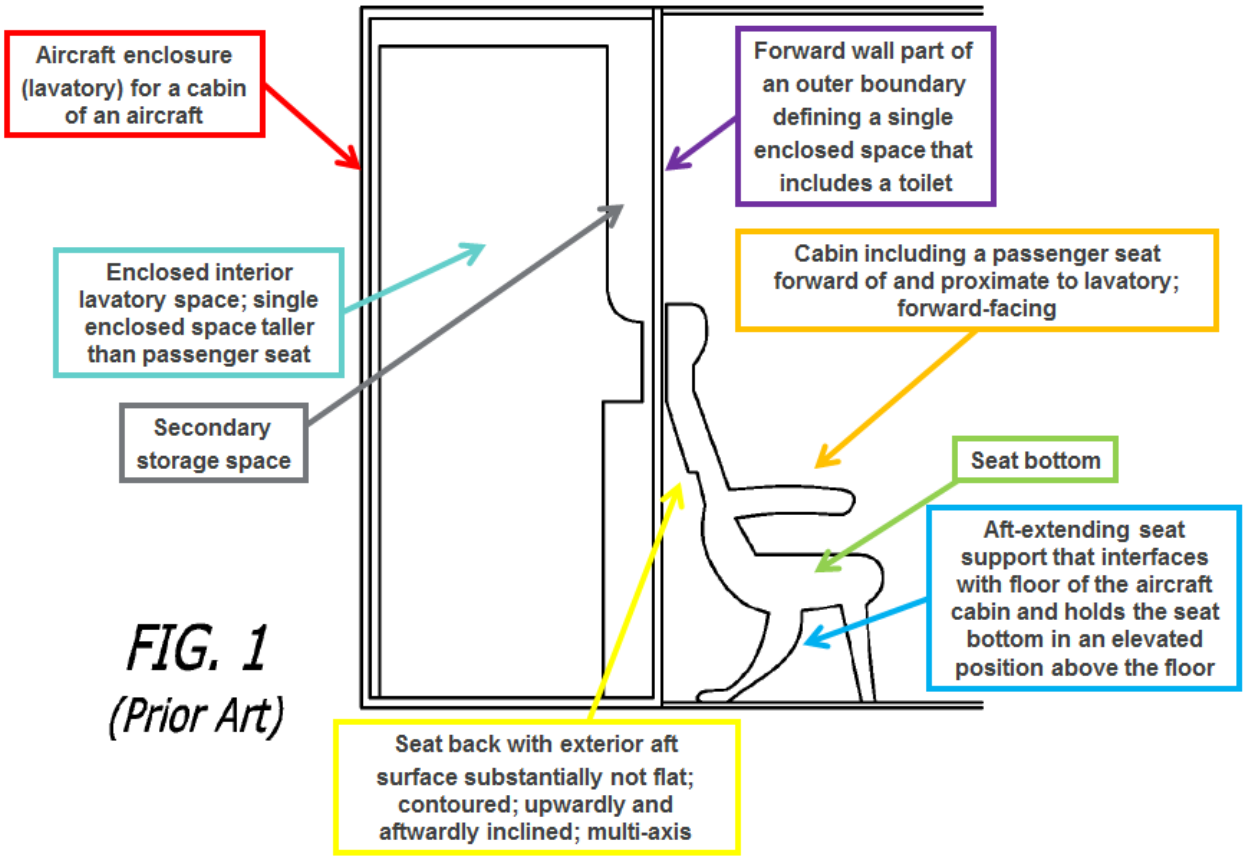



*FIG. 1*
*(Prior Art)*

87. Further, the prior art I discuss above clearly shows that these claim elements were well known in the art and therefore cannot render the claims patentable.

88. I am informed that a claim must be interpreted as a whole. To clarify my analysis in the table below I highlight claim limitations that are admitted to be prior art by Figure 1 of the Patents or are not described by the Challenged Patents. These elements are all admitted prior art and well known in the field.

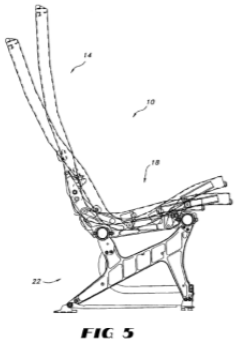
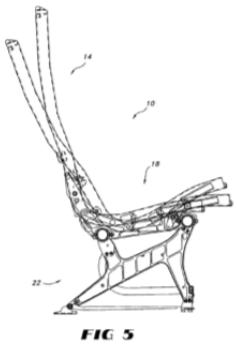
| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| **"aircraft enclosure"** | 292 patent, claim 1, 6 | Figure 1, which is admitted prior art, | Other such lavatories having |

| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| **"aircraft enclosure unit"**<br><br>**"enclosure unit"**<br><br>**"lavatory"**<br><br>**"aircraft lavatory"** | 476 patent, claims 1, 2<br><br>742 patent, claim 8<br><br>641 patent, claims 1, 8 | is described as a "lavatory enclosure" with "a conventional flat and vertical forward wall." '476 Patent at col. 4. | flat walls were well known in the art. *See, e.g.*, Shibata Figures 3 and 4. |
| **"an aircraft passenger seat"**<br><br>**"a passenger seat"**<br><br>**"said passenger seat having a seat back with an exterior aft surface that is substantially not flat"**<br><br>**"a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin"**<br><br>**"a forward-facing passenger seat that includes an upwardly and aftwardly inclined** | 292 patent, claims 1, 6<br><br>476 patent, claims 1, 2<br><br>641 patent, claim 1 | Figure 1, which is admitted prior art, illustrates a prior art aircraft passenger seat with these limitations, which are also described in the background. The same passenger seat is shown in Figure 2.<br><br>While "seat bottom" and "elevated position" are not mentioned in the specification, they are shown in Figure 1.<br><br>"including an aircraft cabin structure having an aft portion with a substantially vertically extending exterior | Passenger seats such as that illustrated in Figure 1 were also well known in the art. *See, e.g.*, Bentley. |

| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| **seat back and an aft-extending seat support disposed below the seat back"** | | aft surface that is substantially not flat in a vertical plane." '476, col. 1:20-22.<br><br>"Structures such as passenger seats installed forward of such aircraft lavatories, closets and similar full height enclosures often have shapes that are contoured in the vertical plane." '476, col. 1:26-29. | |
| **"single enclosed space that includes a toilet"** | 292 patent, claims 1 & 6<br>476 patent, claims 1 & 2 | While "single enclosed space" and "toilet" are not described in the Challenged Patents. If the lavatory in Figure 2 is a single enclosed space, then the lavatory in Figure 1 is as well.<br><br>Further, while the term "toilet" is not mentioned in the specification, one of skill in the art would understand | While "toilet" is not described anywhere in the specification, aircraft lavatories have generally included toilets well before April 2010. *See., e.g.,* Shibata, Cooper, or Breuer. |

| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| | | that when the prior art lavatory or the lavatory in Figure 2 are installed, they would include a toilet. | |
| **"single enclosed space is taller than said passenger seat"**<br><br>**"a lavatory unit including a forward wall portion and defining an enclosed interior lavatory space"**<br><br>**"a forward partition;**<br>**an aft partition; and**<br>**a lavatory space disposed between the forward partition and the aft partition"**<br><br>**"wherein said lavatory unit is taller than the passenger seat."**<br><br>**"wherein said lavatory is taller than the forward-** | 292 patent, claims 1 & 6<br>476 patent, claims 1 & 2<br><br>641 patent, claims 1, 4, 8 & 12<br><br>641 patent, claim | If the lavatory in Figure 2 is an enclosed lavatory space, then the lavatory in Figure 1 is as well.<br><br>Figure 1 shows that the lavatory has a forward wall or partition; a vertical, planar aft partition; a lavatory space in between; and the single enclosed space of the prior art lavatory is taller than the prior art passenger seat. | Aircraft lavatories are taller than a passenger seat. *See., e.g.,* Shibata or Cooper. |

| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| **positioned passenger seat."**<br><br>**"wherein the aft partition is substantially vertical and substantially planar."** | 13 | | |
| **"single enclosed space includes one or more secondary storage spaces"**<br><br>**"said forward wall portion defines a secondary space in said interior lavatory space above the passenger seat back."**<br><br>**"wherein the upper projection defines an interior storage space in the aircraft lavatory."** | 292 patent, claims 2 & 7<br><br>641 patent, claim 7<br><br>742 patent, claim 13 | While they are not labeled, Figure 1 includes the same areas as Figure 2 describes as secondary storage spaces within the lavatory. Thus the prior art lavatory is a single enclosed space that includes one or more secondary storage areas. | It was well known to include secondary storage in a lavatory for amenities and plumbing as examples. *See., e.g.,* Shibata (disposal opening 27) or Cooper (storage cabinet 300). |
| **"a contoured shape of the exterior aft surface of the seat back"**<br><br>**"said exterior aft surface of the seat back has a contoured shape"** | 292 patent, claims 9 & 10<br><br>476 patent, claims 3 & 4<br><br>742 patent, claims 10, 11 & 14 | While the terms "upwardly and aftwardly inclined" and "reclined" do not appear in the specification, the prior art passenger seat in Figure 1 | This seat shape was well known and is similar to the shape shown in Bentley. |

| Limitations | Claims | Admitted Prior Art | Well Known Prior Art |
|---|---|---|---|
| **"a contour of an aft surface of the upwardly and aftwardly inclined seat back."**<br><br>**"upwardly and aftwardly inclined seat back"**<br><br>**"the upwardly and aftwardly inclined seat back is in an upright and not a reclined position."** | | has an upwardly and aftwardly inclined seat back. And the seat is shown in an unreclined, i.e., not a reclined, position. This is typical of passenger seats, including those made, sold, and used prior to April 2010. |  <br>FIG 5 |
| **"said contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger's head and said second section adapted to support a passenger's back, wherein said first axis is not parallel with said second axis"** | 292 patent, claims 11 & 12<br><br>476 patent, claims 5 & 6 | The language about the first and second axis and support of a passenger appear nowhere in the specification. However, the prior art seat shown in Figure 1 has a shape that meets these limitations. | This seat shape was well known and is similar to the shape shown in Bentley.<br>  <br>FIG 5 |

89. The remaining elements of the claims are shown below. Each of the remaining limitations of the claims relate to Figure 2 of the Challenged Patents, i.e., an enclosure with a contoured forward wall that receives a seat back. The table below summarizes these remaining claim limitations and the claims in which they are found.

| Limitations | Claims |
|---|---|
| **"said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of said seat back when the seat back is in an unreclined seat position"** | 292 patent, claims 1 & 6<br>476 patent, claims 1 & 2 |
| **"a portion of the exterior aft surface of said passenger seat back in the unreclined seat position is received by said forward wall"** | 476 patent, claims 1 & 2 |
| **"the contoured forward partition comprises at least one first recess configured to receive at least a portion of an upwardly and aftwardly inclined seat back of a passenger seat therein"** | 742 patent, claim 8 |
| **"said forward wall portion configured to be disposed proximate to and aft of the passenger seat and including an exterior surface having a shape that is substantially not flat in a vertical plane"** | 641 patent, claims 1, 6, 8 & 9 |
| **"includes a first recess configured to receive at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat therein"** | |
| **"wherein said first recess in said forward wall portion is disposed between an upper wall portion and a lower wall portion."** | |
| **"wherein the forward partition comprises: a forward-extending upper portion; an aft-extending mid-portion;** | |

| Limitations | Claims |
|---|---|
| **and a forward-extending lower portion; and wherein the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion combine to define a first aft-extending recess disposed between the upper forward-extending portion and the forward-extending lower portion"**<br><br>**"wherein the first aft extending recess defined by the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition is configured to receive an aft-extending seat back of the forward-positioned passenger seat."** | |
| **"at least one second recess configured to receive at least a portion of an aft-extending seat support of the passenger seat"**<br><br>**"further includes a second recess configured to receive at least a portion of the aft-extending seat support therein when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess."**<br><br>**"the forward partition further defines a second aft-extending recess proximate to a lower end of the forward partition, the second aft-extending recess being configured to receive at least a portion of an aft-extending seat support of a forward-positioned passenger seat therein."** | 742 patent, claim 8<br><br>641 patent, claims 1 & 8 |
| **"forward wall is adapted to provide additional space forward of the aircraft enclosure unit for said seat support to be positioned further aft in the cabin"**<br><br>**"said forward wall is adapted to provide more space forward of the enclosure unit such that the seat support can be positioned further aft in the cabin"** | 292 patent, claims 1 & 6<br><br>476 patent, claims 1 & 2 |
| **"the portion of the exterior aft surface of said seat back received by the forward wall is substantially more than a headrest portion of the exterior aft surface of the seat** | 292 patent, claim 3 |

| Limitations | Claims |
|---|---|
| **back."** | |
| **"the portion of the exterior aft surface of said seat back received by the forward wall is more than an upper half of the exterior aft surface of the seat back."** | 292 patent, claim 4 |
| **"said forward wall is shaped to substantially conform to [a/the] contoured shape of the exterior aft surface of the seat back when the seat back is in the unreclined position"**<br><br>**"the at least one first recess substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back"**<br><br>**"said forward wall portion is shaped to substantially conform to the shape of the upwardly and aftwardly inclined seat back of the passenger seat"** | 292 patent, claims 9 & 10<br><br>476 patent, claims 3, 4<br><br>742 patent, claim 10<br><br>641 patent, claim 1 |
| **"said forward wall is also configured to receive at least an aft-extending portion of the seat support of said passenger seat"** | 292 patent, claims 5 & 8 |
| **"reducing the volume of unusable space in the cabin area by reducing or eliminating gaps that existed between the previously-installed forward wall and the passenger seat."** | 742 patent, claim 8 |
| **"the contoured forward partition further comprises an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back."**<br><br>**"said forward wall portion further includes a projection configured to project over the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received within the second recess."**<br><br>**"said forward-extending upper portion is configured to project over at least a portion of the forward-positioned passenger seat."** | 742 patent, claim 11<br><br>641 patent, claims 3, 10 |

| Limitations | Claims |
|---|---|
| **"the upper projection is configured to abut an upper surface of the cabin area"** | 742 patent, claim 12 |
| **"the at least one first recess extends along substantially a full width of the contoured forward partition"**<br><br>**"wherein said first aft-extending recess extends along substantially a full width of said forward partition"** | 742 patent, claim 15<br><br>641 patent, claim 16 |
| **"the contoured forward partition permits the aft-extending seat support to be positioned farther aft in the cabin area"** | 742 patent, claim 16 |
| **"said forward wall portion includes a lower portion that is disposed under the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received within the second recess."** | 641 patent, claim 5 |
| **"said lavatory has a top, a bottom, a height therebetween, and a middle therebetween, said lavatory has varying lengths along the height of the lavatory, and said lavatory is longer at the top of the lavatory than at the bottom of the lavatory."**<br><br>**"wherein the width of the lavatory space disposed between the forward partition and the aft partition comprises an upper width, a lower width, and a mid-width, and wherein the upper width and the lower width are both substantially wider than the mid-width."** | 641 patent, claims 14 and 17 |
| **"wherein the upper forward-extending portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition form a substantially continuous surface."** | 641 patent, claim 15 |

90. Such a contoured forward wall was well known in the prior art. As shown below, each of Betts and the KLM Crew Rest are substantially the same as Figure 2 of the Challenged Patents.

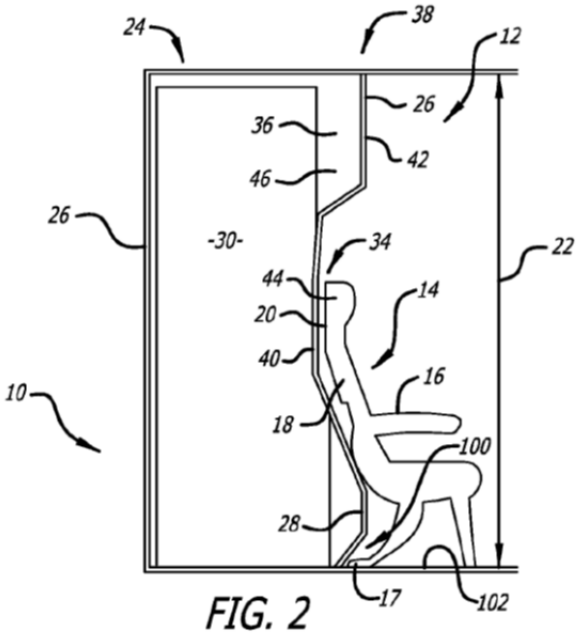


FIG. 2

91. Each shows an enclosure with a contoured forward wall configured to receive a seat back. Each of the enclosures has a different shape for the contour. This is not surprising because each forward wall would have been designed based on different customer specifications or requirements (e.g., different aircraft, different passenger seats, etc.). Designing the shape of the recess to meet those requirements and to conform to the shape of the passenger seat would have been a routine task within the skill of a person of ordinary skill in the art. Each enclosure shown below renders obvious the claims of the Challenged Patents.

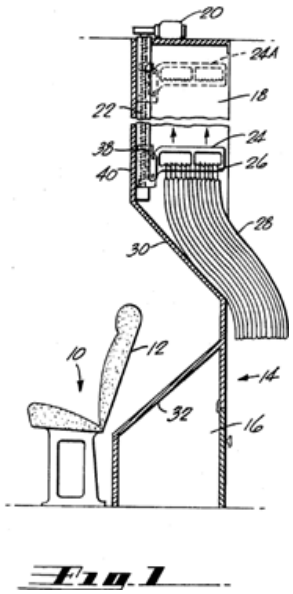
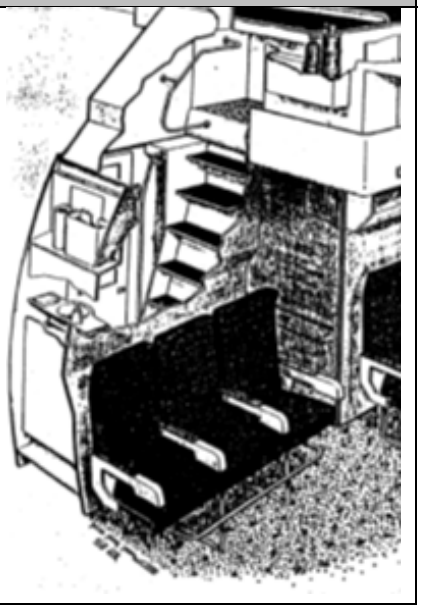
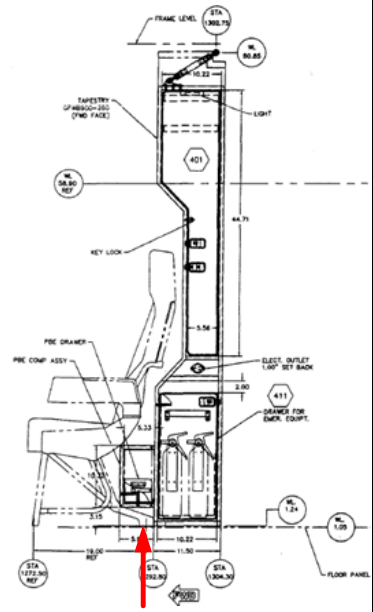
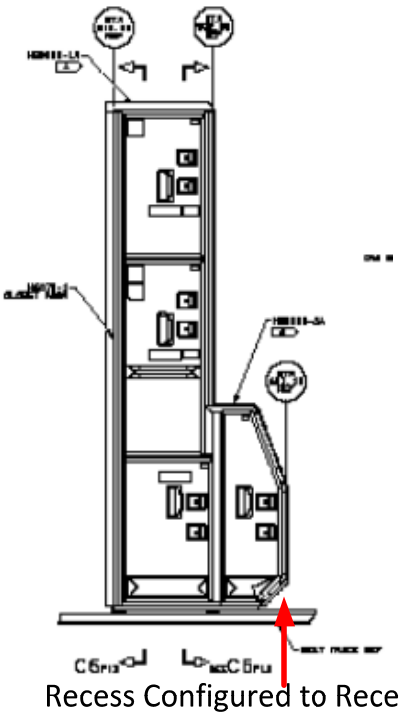
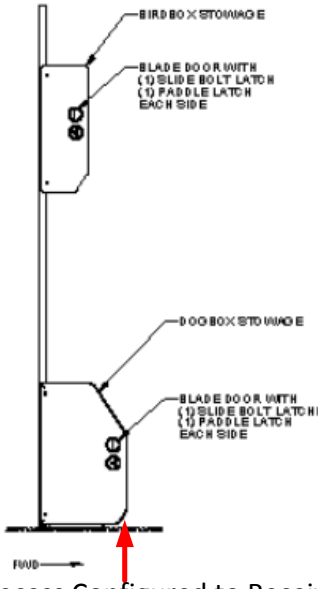
| Betts | KLM Crew Rest | KLM Crew Rest |
|---|---|---|
|  |  |  |



Fig. 1

92. Patent Owner may argue that some claims require a second recess configured to receive a seat support. For the reasons I explain above, it would be obvious to modify a flat wall lavatory to include a second recess.

93. Further, while I do not rely on this art in coming to my conclusion of invalidity, the prior art below demonstrates the knowledge of persons of ordinary skill in the art and well-known solutions to the problem. Thus, the prior art below informs my opinion that including a second recess configured to receive an aft-extending seat support was well known in the art.

| MD-90 Storage | 737 Storage | 747 Storage |
|---|---|---|
|  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |   Recess Configured to Receive Aft-Extending Seat Support |

## VIII. ANALYSIS OF SPECIFIC CLAIM ELEMENTS

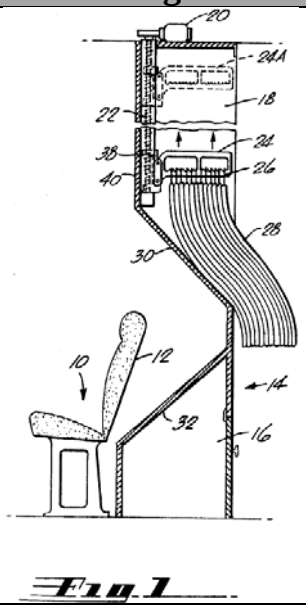
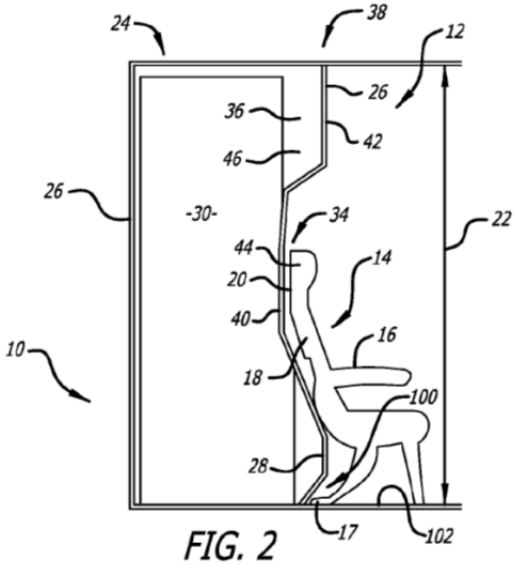
### A. '292 Patent, Claims 1-12 are Obvious In View of the Prior Art

**[*'292 Claim 1 Preamble*] An aircraft enclosure for a cabin of an aircraft, the cabin including a passenger seat located forward of and proximate to the aircraft enclosure, said passenger seat having a seat back with an exterior aft surface that is substantially not flat, a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin, the aircraft enclosure comprising:**

94. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified

by Betts or the KLM Crew Rest.

95. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Figure 1 of Betts is a side elevation that shows an assembly of an enclosure that is located immediately aft of and adjacent to a passenger seat and is nearly identical to Figure 2 of the Challenged Patents.

| Betts Figure 1 | Challenged Patents Figure 2 |
|---|---|
|  |  |

96. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. The KLM Crew Rest shows a side elevation of a lavatory enclosure. The enclosure has a curved wall to allow space for a seat that is located forward of and proximate to the aircraft enclosure.

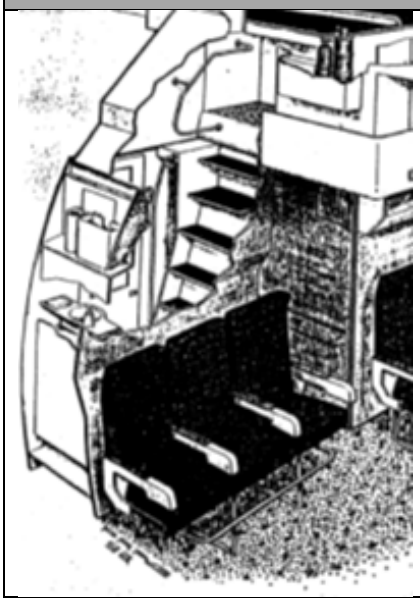
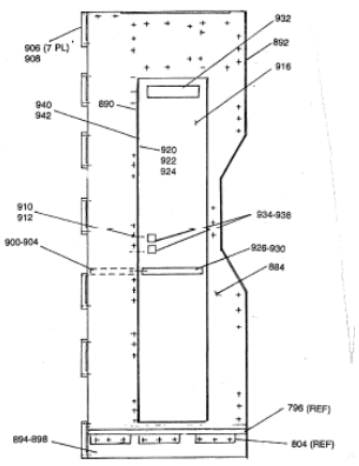
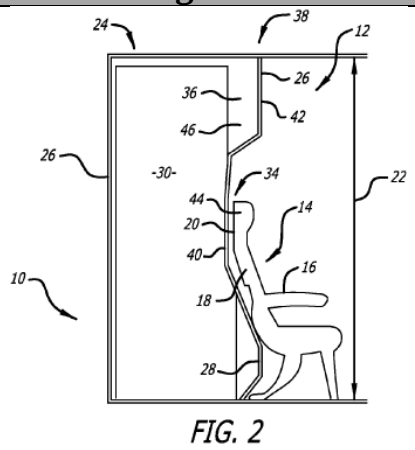
| KLM Crew Rest | KLM Crew Rest | Challenged Patents Figure 2 |
|---|---|---|
|  |  |  |

FIG. 2

97. Further, as discussed above, a passenger seat "having a seat back with an exterior aft surface that is substantially not flat, a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin" was well known in the art prior to the earliest claimed priority date of the Challenged Patents, and to the extent such a seat is not already disclosed by Betts or the KLM Crew Rest, it would have been obvious to use the prior art design along with one of these designs for a curved wall.

**[*'292 Claim 1, Element A*] an enclosure unit having a forward wall, said forward wall being part of an outer boundary defining a single enclosed space that includes a toilet,**

98. In my opinion, Figure 1 of the Challenged Patents admits that this element was known in the prior art. Further, in my opinion a person of ordinary

skill in the art would have been familiar with prior art lavatories that had a forward wall that was part of an outer boundary defining a single enclosed space that includes a toilet.

99. I note that the Challenged Patents include no definition or description of a single enclosed space. However, I understand that Patent Owner asserts that an airplane lavatory meets the definition of a single enclosed space. Prior art Figure 1 of the Challenged Patents as well as each of Betts and the KLM Crew Rest discloses an outer boundary defining either a single enclosed space of an enclosure. Further, to the extent a single enclosed space is not disclosed by these three references, as I discuss above, it would be obvious to apply these curved walls for use in an airplane lavatory, which Patent Owner asserts meets the definition of single enclosed space.

> **[*'292 Claim 1, Element B*] said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of said seat back when the seat back is in an unreclined seat position;**

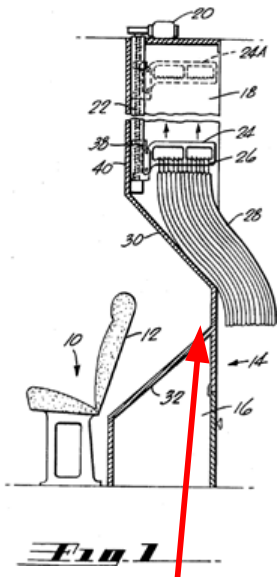
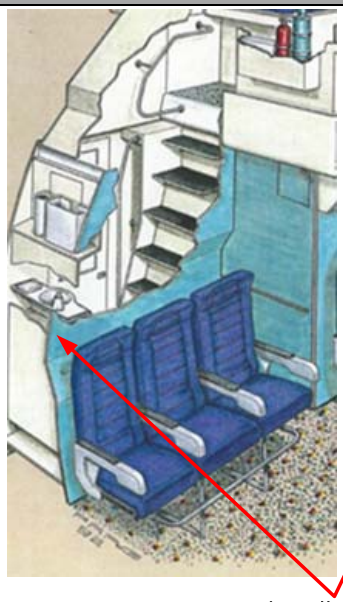
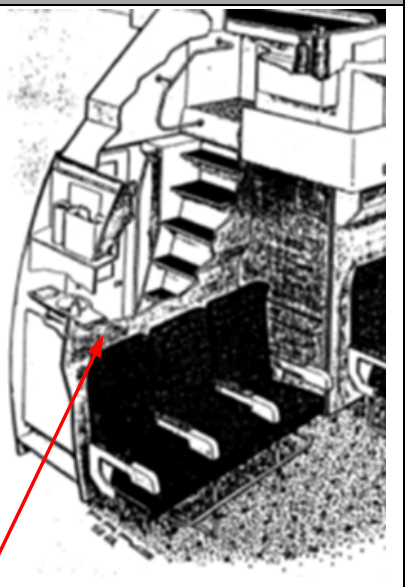
100. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

101. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Further, as I explain above, a person of ordinary skill in the art

would recognize that a toilet for use in an airplane was well known in the art and could have easily been installed in a curved wall lavatory. A flat wall lavatory including a prior art toilet, as modified by the curved wall of Betts discloses "an enclosure unit having a forward wall, said forward wall being part of an outer boundary defining a single enclosed space that includes a toilet, said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of said seat back when the seat back is in an unreclined seat position." This is further shown in the annotated Figure below. Further, it is clear that the seat shown in Betts is positioned further aft than it could be positioned if there were no recess because the seat back is within the recess. Thus the recess is configured to receive the seat back. Further, as I noted above, the seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the Challenged Patents. Thus, in my opinion this seat is in an unreclined position.

102. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. Further, as I explain above, a person of ordinary skill in the art would recognize that a toilet for use in an airplane was well known in the art and could have easily been installed in a curved wall lavatory. A flat wall lavatory including a prior art toilet, as modified by the curved wall of the KLM Crew Rest discloses "an enclosure unit having a forward wall, said forward wall

being part of an outer boundary defining a single enclosed space that includes a toilet, said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of said seat back." This is further shown in the annotated Figure below. Further, a person of ordinary skill in the art would recognize that the seat shown in the KLM Crew rest is positioned further aft than it could be positioned without the recess. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added.

| Betts | KLM Crew Rest |
|---|---|
|  Curved Wall Configured to Receive a Seat Back |   Contoured Wall Configured to Receive a Seat Back |

**[*'292 Claim 1, Element C*] wherein said forward wall is adapted to provide additional space forward of the enclosure unit for said seat support to be positioned further aft in the cabin when compared with a position of said seat support if said forward wall was instead substantially flat; and**

103. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. A person of ordinary skill in the art would recognize that a seat is fixed to a seat support. Thus, as the seat is moved, the seat support will also move further aft.

104. With regard to both Betts the seat and the seat support is positioned further aft in the cabin, which is clear because the seat is plainly within the recess in the wall. This is shown in the annotated figure below.

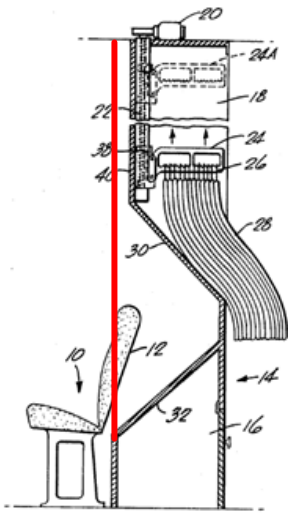



Fig. 1

105. With regard to the KLM Crew Rest, the recess in the KLM Crew Rest was designed to allow the last row of seats positioned in front of the curved wall to

sit further aft in the aircraft, yet still be able to recline. Sobotta Declaration, at ¶ 13. Thus, if there were no recess, this seat would need to be positioned further forward to allow for recline. Thus, the curved wall allows for this seat to sit further aft than it otherwise would be able to sit. Furthermore, if seat recline were not required, a person of ordinary skill in the art would further be motivated to restrict the seat recline and position the seat further aft to provide more room in the passenger cabin for increased seat pitch or additional rows of seats.

**[*'292 Claim 1, Element D*] wherein said single enclosed space is taller than said passenger seat.**

106. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

107. As is shown in the annotated figures above, the enclosure units in each of Betts and the KLM Crew Rest is taller than the seat positioned in front of them.

108. As I noted above, the Challenged Patents include no definition or description of a single enclosed space. However, each of Betts and the KLM Crew Rest discloses an outer boundary defining either a single enclosed space or an enclosure. Further, to the extent a single enclosed space is not disclosed by these three references, as I discuss above, it would be obvious to modify any of these three curved walls for use in an airplane lavatory, which Patent Owner asserts

meets the definition of single enclosed space.

**[‘*292 Claim 2*] The apparatus of claim 1, wherein said single enclosed space includes one or more secondary storage spaces.**

109. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. The Challenged Patents do not define the term “secondary storage spaces,” however, by any reasonable definition for this term, secondary storage spaces inside a lavatory were known in the art. Indeed, the admitted prior art Figure 1 of the Challenged Patent shows secondary storage space inside the prior art lavatory.

110. As I explain above, a person of skill in the art would be motivated to modify a prior art lavatory to include the curved forward wall design shown in Betts. One of ordinary skill in the art would recognize that a lavatory will include components that Patent Owner has identified as meeting the secondary storage space claim limitation, e.g., trash storage and receptacles, and storage space under the sink and behind the toilet, among other places.

111. Further, the KLM Crew Rest clearly shows secondary storage spaces, such as amenity stowage. Sobotta Declaration, at ¶ 16 (the crew rest includes “a lavatory sink (and related plumbing), lighting, a mirror, soap dispenser, shaver outlet and amenity stowage.”).

**[*'292 Claim 3*] The apparatus of claim 1, wherein the portion of the exterior aft surface of said seat back received by the forward wall is substantially more than a headrest portion of the exterior aft surface of the seat back.**

112. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

113. The Challenged Patents do not define what is meant by "substantially more than a headrest portion of the exterior aft surface of the seat back." However, under any reasonable definition this is obvious in view of the disclosure of Betts or the KLM Crew Rest.

114. To the extent this claim limitation is not already disclosed by Figure 1 of Betts or the KLM Crew rest a person of ordinary skill in the art would recognize that the seat shown in these references could be moved further aft, e.g., to increase seat pitch or to allow for an additional row of seats in the aircraft.

**[*'292 Claim 4*] The apparatus of claim 1, wherein the portion of the exterior aft surface of said seat back received by the forward wall is more than an upper half of the exterior aft surface of the seat back.**

115. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

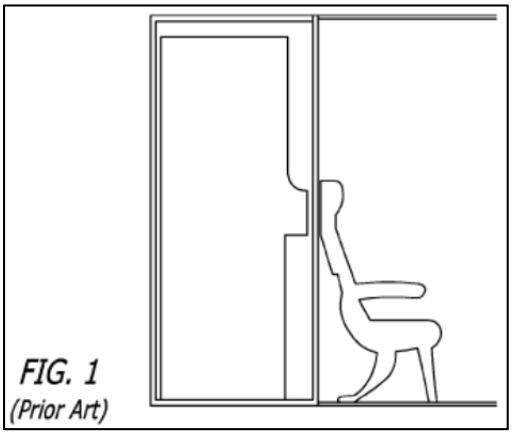
116. The Challenged Patents do not define what is meant by "more than an

upper half of the exterior aft surface of the seat back." To the extent this claim limitation is not already disclosed by Figure 1 of Betts or the KLM Crew rest a person of ordinary skill in the art would recognize that the seat shown in these references could be moved further aft, e.g., to increase seat pitch or to allow for an additional row of seats in the aircraft.

**[*'292 Claim 5*] The apparatus of claim 1, wherein said forward wall is also configured to receive at least an aft-extending portion of the seat support of said passenger seat.**

117. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

118. As is shown in the annotated figure below, the challenged patents admit that a seat with an aft extending seat support is well known in the art..



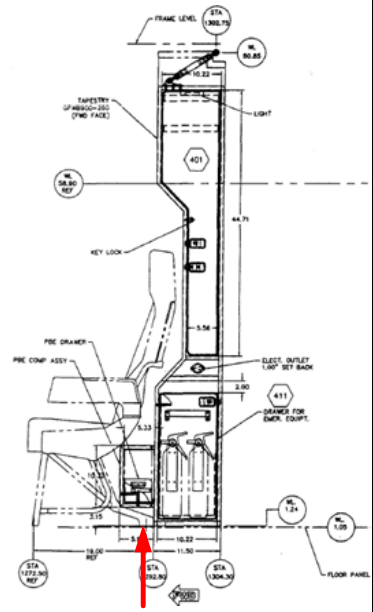
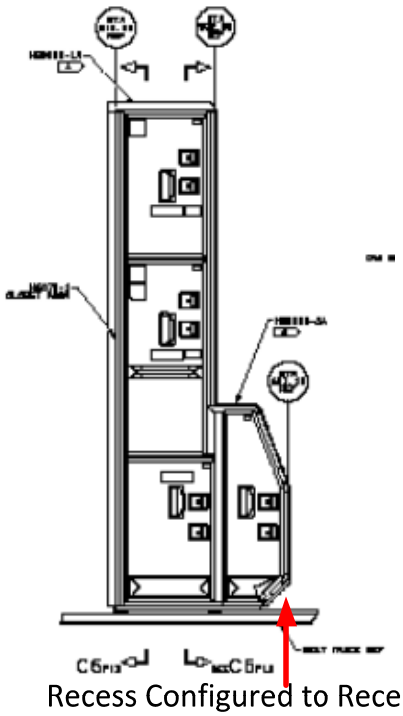
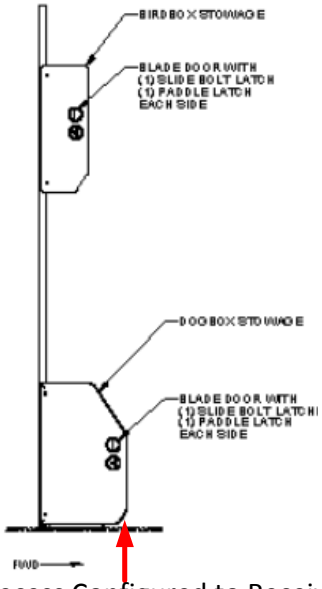

119. As I explain above, a person of ordinary skill in the art would realize that when such a seat is moved further aft, the first component to impact the wall is the seat back. As I explain above, Betts includes a forward facing recess that

receives the seat back.

120. Further, the KLM Crew Rest shows both a passenger seat and a contoured forward partition. As I explain above, the passenger seat is positioned is positioned such that it could not recline without a contoured forward wall, thus this seat is at least partially within the contour and is thus received by the recess.

121. Further, a person of ordinary skill in the art would understand that as the seat is moved further aft, the next component to impact the wall is the aft seat support. A person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. In my opinion, this modification is nothing more than the application of known technology for its intended purpose. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft.

122. As evidence of this modification being well known, I include three examples of prior art enclosures that included a lower recess to accommodate aft-extending seat supports. I understand that these designs are not available as prior art in this proceeding. Thus, I do not rely on these designs as a basis for invalidity. However, these designs inform my opinion by confirming that such a modification was well known in the art, and thus would have been obvious to a person of ordinary skill in the art.

| MD-90 Storage | 737 Storage | 747 Storage |
|---|---|---|
|  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |   Recess Configured to Receive Aft-Extending Seat Support |

**[*'292 Claim 6 preamble*] A combination of an aircraft enclosure unit and an aircraft passenger seat for installation in an aircraft cabin, the combination comprising:**

123. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['292 Claim 1, Preamble].

**[‘*292 Claim 6 Element A*] said passenger seat configured to be located forward of and proximate to the aircraft enclosure unit, said passenger seat having a seat back with an exterior aft surface that is substantially not flat, a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin;**

124. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Preamble].

**[‘*292 Claim 6 Element B*] the aircraft enclosure unit having a forward wall, said forward wall being part of an outer boundary defining a single enclosed space that includes a toilet,**

125. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element A].

**[‘*292 Claim 6 Element C*] said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of said seat back when the seat back is in an unreclined seat position;**

126. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element B].

**[‘*292 Claim 6 Element D*] wherein said forward wall is adapted to provide additional space forward of the aircraft enclosure unit for said seat support to be positioned further aft in the cabin when compared with a position of said seat support if said forward wall was substantially flat; and**

127. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element C].

**[‘*292 Claim 6 Element E*] wherein said single enclosed space is taller than said passenger seat.**

128. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element D].

**[‘*292 Claim 7*] The apparatus of claim 6, wherein said single enclosed space includes one or more secondary storage spaces within said boundary defining said single enclosed space.**

129. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claims 2 and 6].

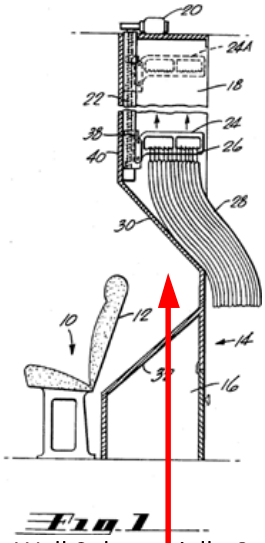
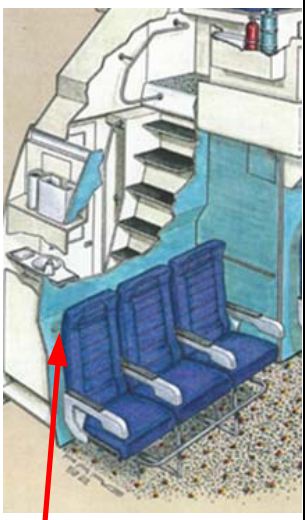
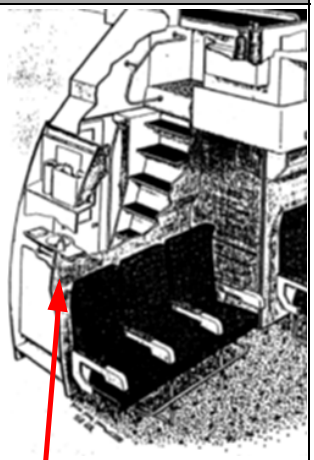
**[‘*292 Claim 8*] The apparatus of claim 6, wherein said forward wall is also configured to receive at least an aft-extending portion of the seat support of said passenger seat.**

130. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claims 6 and 5].

**[‘*292 Claim 9*] The aircraft enclosure of claim 1, wherein said forward wall is shaped to substantially conform to a contoured shape of the exterior aft surface of the seat back when the seat back is in the unreclined position.**

131. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. The Challenged Patents do not include a definition for what is meant by “substantially conform” but as shown in Figure 2 of the Challenged Patents, the forward wall is not required to precisely conform to the shape of the passenger seat. As is shown in the Figure below, the walls of each of Betts and the KLM Crew Rest substantially conform to a contoured shape of the exterior aft surface of the seat back. Further, in both cases the seat is provided with the ability to recline, but if the ability to recline the seat were removed or not required, a person of ordinary skill in the art would have designed the shape of the recess to substantially conform to the shape of the passenger seat in its upright (i.e., unreclined) position. A person of ordinary skill in the art would have been

motivated to do so to more efficiently maximize the use of space in the cabin.

| Betts | KLM Crew Rest | KLM Crew Rest |
|---|---|---|
|  <br>Fig. 1<br>Wall Substantially Conforms to Contoured Shape of the Seat Back |  <br>Wall Substantially Conforms to Contoured Shape of the Seat Back |  <br>Wall Substantially Conforms to Contoured Shape of the Seat Back |

132. I also incorporate my analysis discussed above with regard to ['292 Claim 6 and Claim 1].

> **['*292 Claim 10*] The apparatus of claim 6, wherein said exterior aft surface of the seat back has a contoured shape, and said forward wall is shaped to substantially conform to the contoured shape of the exterior aft surface of the seat back when the seat back is in the unreclined position.**

133. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

134. As I explain above, the only seat shown in the Challenged Patents includes a contoured shape and is admitted to be prior art. Further, a seat with a

contoured shape is well known in the art. *See* Bentley, discussed above. A person of ordinary skill in the art would realize that seats on an airplane could be removed and replaced. Thus, a person of ordinary skill in the art could replace any of the seats shown in Betts or the KLM Crew Rest with a prior art seat design. Further, a person of ordinary skill in the art would have designed the shape of the recess to substantially conform to the shape of the passenger seat to more efficiently maximize the use of space in the cabin.

135. I also incorporate my analysis discussed above with regard to [‘292 Claim 6, Claim 9, Claim 1 Element A].

> **[‘*292 Claim 11*] The aircraft enclosure of claim 9, wherein said contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger’s head and said second section adapted to support a passenger’s back, wherein said first axis is not parallel with said second axis.**

136. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

137. As I explain above, the only seat shown in the Challenged Patents includes a contoured shape and is admitted to be prior art. This seat has “a contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger’s head and said second section adapted to support a passenger’s back,

wherein said first axis is not parallel with said second axis."

138. Further, a seat with "a contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger's head and said second section adapted to support a passenger's back, wherein said first axis is not parallel with said second axis" is well known in the art. *See* Bentley, discussed above. Further, the KLM Crew Rest shows a passenger seat with a contoured shape that includes a first section extending along a first axis for supporting a passenger's head and a second section extending along a second axis for supporting a passenger's back. As I explain above, a person of ordinary skill in the art would realize that seats on an airplane could be removed and replaced. Thus, a person of ordinary skill in the art could replace any of the seats shown in Betts or the KLM Crew Rest with another prior art seat design.

> **[*'292 Claim 12*] The apparatus of claim 10, wherein said contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger's head and said second section adapted to support a passenger's back, wherein said first axis is not parallel with said second axis.**

139. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['292 Claims 10 and 11].

### B. ‘476 Patent, Claims 1-6 are Obvious

**[*‘476 Claim 1 Preamble*] A method of retrofitting an aircraft to provide additional passenger seating in the cabin of said aircraft, the cabin including a passenger seat having a seat back with an exterior aft surface that is substantially not flat, a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin, the method comprising the steps of:**

140. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Preamble].

141. A prior art flat wall lavatory could be modified to include the contoured forward wall shown in either Betts or the KLM Crew Rest. As I explain above, a motivation for doing so would be to enable a row of passenger seats to sit further aft in the aircraft cabin.

142. A person of ordinary skill in the art also would understand that a lavatory modified to include the contoured forward wall of Betts or the KLM Crew Rest could be sold and installed for either line fit or retrofit applications, which are the two major types of contracts for the aircraft lavatory market. Thus, the claimed method of retrofitting would have been well-known and obvious to a person of ordinary skill in the art.

**[‘*476 Claim 1 Element A*] installing an aircraft enclosure unit comprising: a forward wall, said forward wall being part of an outer boundary defining a single enclosed space that includes a toilet,**

143. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element A].

**[‘*476 Claim 1 Element B*] said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of the seat back when the seat back is in an unreclined seat position**

144. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element B].

145. A prior art flat wall lavatory could be modified to include the contoured front wall shown in either Betts or the KLM Crew Rest. As I explain above, a motivation for doing so would be to enable a row of passenger seats to sit further aft in the aircraft cabin.

**[‘*476 Claim 1 Element C*] wherein said forward wall is adapted to provide more space forward of the enclosure unit such that the seat support can be positioned further aft in the cabin than if the cabin included another enclosure unit having a substantially flat front wall located in substantially the same position in the cabin as the forward wall, and**

146. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element C].

**[‘*476 Claim 1 Element D*] wherein said enclosed space is taller than the passenger seat; and**

147. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘292 Claim 1, Element D].

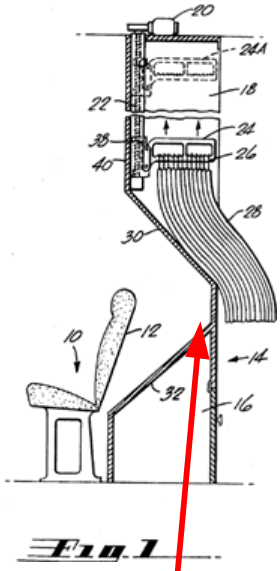
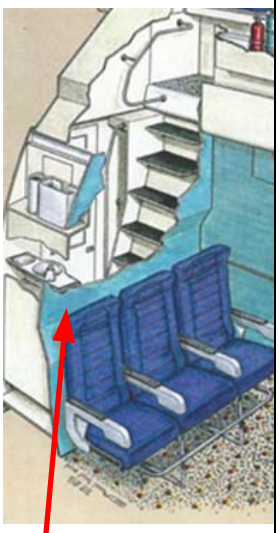
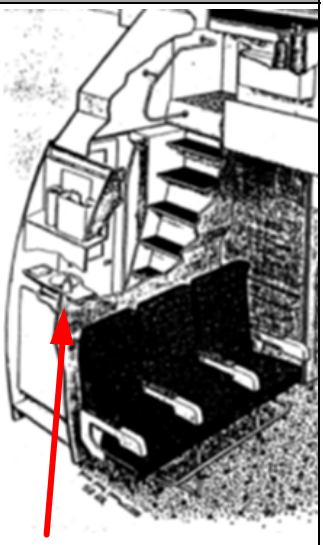
**[‘*476 Claim 1 Element E*] positioning said seat support further aft in said aircraft cabin than said seat support could have been positioned prior to retrofitting said aircraft, whereby a portion of the exterior aft surface of said passenger seat back in the unreclined seat position is received by said forward wall.**

148. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

149. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Further, it is clear that the seat shown in Betts is positioned further aft than it could be positioned if there were no recess in the forward wall because the seat back is within the recess. Thus the recess is configured to receive the seat

back. Further, as I noted above, the seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the Challenged Patents. Thus, in my opinion this seat is in an unreclined position.

150. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew rest is positioned further aft than it could be positioned without the recess. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added.

| Betts | KLM Crew Rest | KLM Crew Rest |
|---|---|---|
|  <br>Fig 1<br>Curved Wall Configured to Receive a Seat Back |  <br>Curved Wall Configured to Receive a Seat Back |  <br>Curved Wall Configured to Receive a Seat Back |

**[*'476 Claim 2 Preamble*] A method of providing an aircraft with more passenger seats in the aircraft's cabin, the method comprising the steps of:**

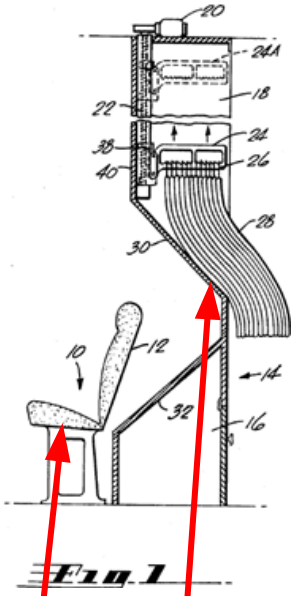
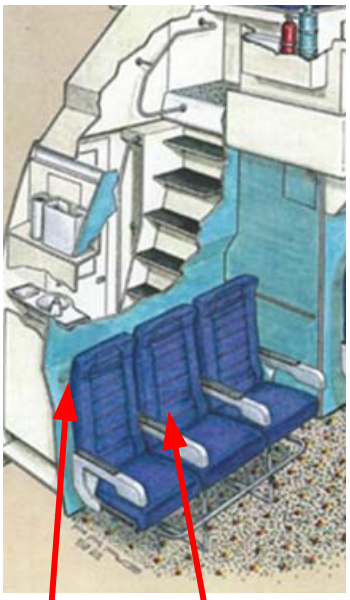
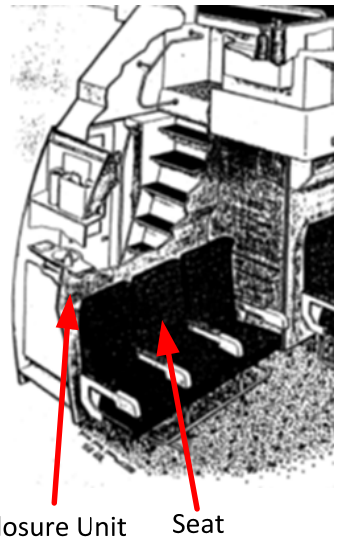
151. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['476 Claim 1 Preamble].

**[*'476 Claim 2 Element A*] installing a combination of an enclosure unit and a passenger seat in the aircraft, said passenger seat having a seat back, a seat bottom, and a seat support that interfaces with the floor of the aircraft cabin and holds the seat bottom in an elevated position above the floor of the aircraft cabin, the combination comprising**

152. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 1 Preamble and Element A].

**[‘*476 Claim 2 Element B*] the passenger seat being configured to be located forward of and proximate to the enclosure unit,**

153. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, which shows a passenger seat located forward of and proximate to the enclosure unit, as modified by Betts or the KLM Crew Rest. As shown below, each of Betts and the KLM Crew Rest also show an enclosure unit and a passenger seat forward of and proximate to the enclosure unit.

| Betts | KLM Crew Rest | KLM Crew Rest |
|---|---|---|
|  |  |  |

**[*'476 Claim 2 Element C*] the enclosure unit being located aft of the passenger seat, the enclosure unit having a forward wall, said forward wall being part of an outer boundary defining a single enclosed space that includes a toilet,**

154. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['476 Claim 1 Element A].

**[*'476 Claim 2 Element D*] said forward wall being substantially not flat and configured to receive a portion of the exterior aft surface of the passenger seat back in an unreclined seat position,**

155. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the

KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 1 Element B].

**[‘*476 Claim 2 Element E*] wherein said forward wall is adapted to provide more space forward of the enclosure unit such that the seat support can be positioned further aft in the cabin than if the cabin included another enclosure unit having a front wall that is substantially flat and is located in substantially the same position in the cabin as the forward wall,**

156. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 1 Element C].

**[‘*476 Claim 2 Element F*] wherein said enclosed space is taller than the passenger seat,**

157. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 1 Element D].

**[‘*476 Claim 2 Element G*] whereby said seat support is installed further aft in said cabin than would be possible if the substantially flat front wall of the other enclosure unit was located in substantially the same position in the aircraft cabin as the forward wall, and**

158. In my opinion this element is obvious i in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476

Claim 1 Element E].

> **[‘*476 Claim 2 Element H*] whereby a portion of the exterior aft surface of said passenger seat back in the unreclined seat position is received by said forward wall.**

159. In my opinion this element is obvious i in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 1 Element E].

> **[‘*476 Claim 3*] The method of claim 1, wherein said exterior aft surface of the passenger seat back has a contoured shape, and wherein said forward wall is shaped to substantially conform to the contoured shape of the exterior aft surface of the passenger seat back when the exterior aft surface of said passenger seat back in the unreclined position is received by said forward wall whereby a portion of the exterior aft surface of said passenger seat back in the unreclined seat position is received by said forward wall.**

160. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

161. As I explain above, the only seat shown in the Challenged Patents includes a contoured shape and is admitted to be prior art. Further, a seat with a contoured shape is well known in the art. *See* Bentley, discussed above. A person of ordinary skill in the art would realize that seats on an airplane could be removed and replaced. Thus, a person of ordinary skill in the art could replace any of the

seats shown in Betts or the KLM Crew Rest with another prior art seat design.

162. The Challenged Patents do not include a definition for what is meant by "substantially conform" but as shown in Figure 2 of the Challenged Patents, the forward wall is not required to precisely conform to the shape of the passenger seat. As is shown in the figure below, the walls of Betts and the KLM Crew Rest substantially conforms to a contoured shape of the exterior aft surface of the seat back.

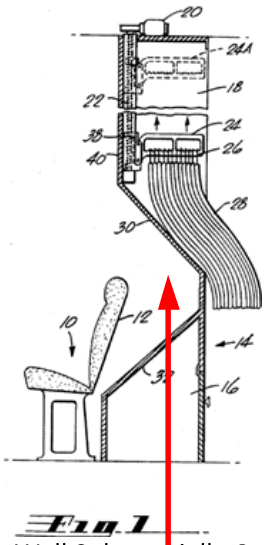
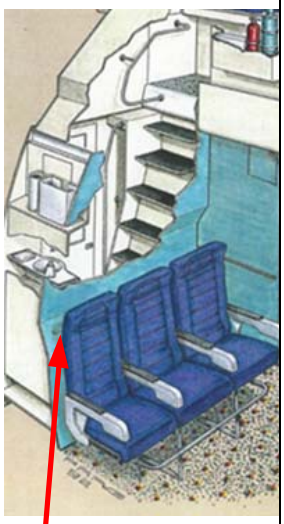
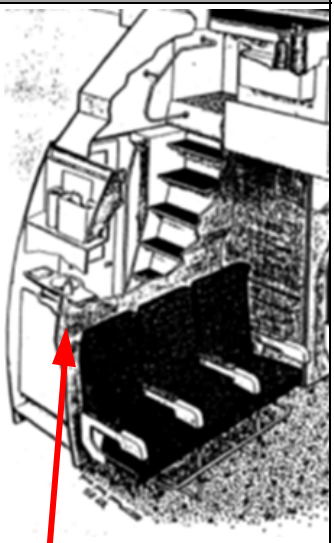
163. For Betts and the KLM Crew Rest the seat is provided with the ability to recline, but if the ability to recline the seat were removed or not required, a person of ordinary skill in the art would have designed the shape of the recess to receive and substantially conform to the shape of the passenger seat in its upright (i.e., unreclined) position. Designing recess to receive the seat back when the seat back is in an unreclined position would have been an obvious design choice to a person of ordinary skill in the art. A person of ordinary skill in the art would have been motivated to do so to more efficiently maximize the use of space in the cabin.

164. I also incorporate my analysis discussed above with regard to ['292 Claim 1 Element A].

165. It is clear that the seat shown in Betts is positioned further aft than it could be positioned if there were no recess because the seat back is within the recess. Thus the recess receives the seat back. Further, as I noted above, the seat

shown in Betts is in substantially the same position as the seat shown in Figure 2 of the Challenged Patents. Thus, in my opinion this seat is in an unreclined position.

166. A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew Rest is positioned further aft than it could be positioned without the recess. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added.

| Betts | KLM Crew Rest | KLM Crew Rest |
|---|---|---|
|  Wall Substantially Conforms to Contoured Shape of the Seat Back |  Wall Substantially Conforms to Contoured Shape of the Seat Back |  Wall Substantially Conforms to Contoured Shape of the Seat Back |

**[‘*476 Claim 4*] The method of claim 2, wherein said exterior aft surface of the passenger seat back has a contoured shape, and wherein said forward wall is shaped to substantially conform to the contoured shape of the exterior aft surface of the passenger seat back when the exterior aft surface of said passenger seat back in the unreclined position is received by said forward wall.**

167. In in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 2 and Claim 3].

**[‘*476 Claim 5*] The method of claim 3, wherein said contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger’s head and a second adapted to support a passenger’s back, wherein said first axis is not parallel with said second axis.**

168. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

169. As I explain above, the only seat shown in the Challenged Patents is admitted to be prior art. This seat has “a contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger’s head and said second section adapted to support a passenger’s back, wherein said first axis is not parallel with said second axis.”

170. Further, a seat with "a contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger's head and said second section adapted to support a passenger's back, wherein said first axis is not parallel with said second axis" is well known in the art. *See* Bentley, discussed above. Further, a seat with "a contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger's head and said second section adapted to support a passenger's back, wherein said first axis is not parallel with said second axis" is well known in the art. *See* Bentley, discussed above. Further, the KLM Crew Rest shows a passenger seat with a contoured shape that includes a first section extending along a first axis for supporting a passenger's head and a second section extending along a second axis for supporting a passenger's back. As I explain above, a person of ordinary skill in the art would realize that seats on an airplane could be removed and replaced. Thus, a person of ordinary skill in the art could replace any of the seats shown in Betts or the KLM Crew Rest with another prior art seat design.

**[‘*476 Claim 6*] The method of claim 4, wherein said contoured shape includes a first section extending along a first axis and a second section extending along a second axis, said first section adapted to support a passenger’s head and a second adapted to support a passenger’s back, wherein said first axis is not parallel with said second axis.**

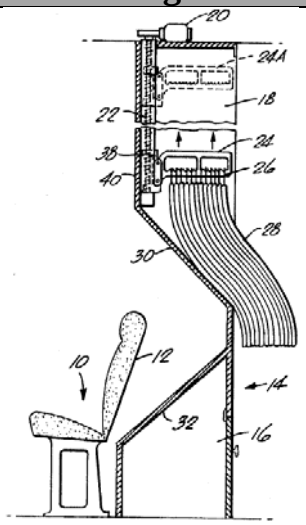
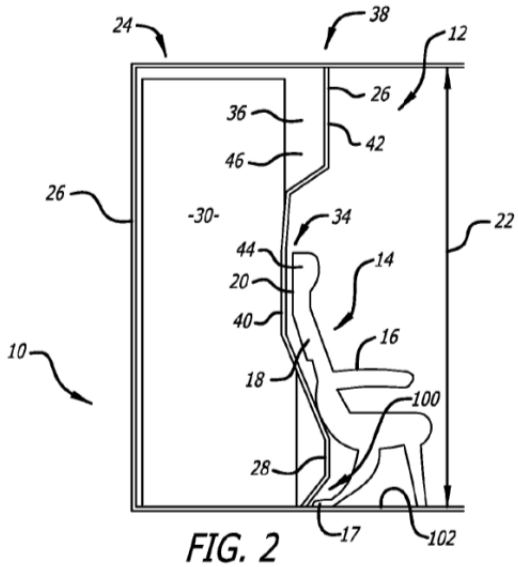
171. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘476 Claim 4 and Claim 5].

### C. ‘641 Patent, Claims 1, 3-10, and 12-17 are Obvious

**[‘*641 Claim 1 Preamble*] An aircraft lavatory for a cabin of an aircraft of a type that includes a forward-facing passenger seat that includes an upwardly and aftwardly inclined seat back and an aft-extending seat support disposed below the seat back, the lavatory comprising:**

172. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

173. Figure 1 of Betts is a side elevation that shows an assembly of an enclosure that is located immediately aft of and adjacent to a passenger seat and is nearly identical to Figure 2 of the ’641 Patent.

| Betts Figure 1 | '641 Patent Figure 2 |
| --- | --- |
|  |  |

174. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Further, the only seat shown or described in the '641 Patent is admitted to be prior art. Thus, "a forward-facing passenger seat that includes an upwardly and aftwardly inclined seat back and an aft-extending seat support disposed below the seat back," is admitted to be prior art. However, to the extent it is not, as shown in the annotated figure below, Figure 1 of Betts shows "a forward-facing passenger seat." This seat includes "an upwardly and aftwardly inclined seat back." The seat further includes "an aft-extending seat support disposed below the seat back."

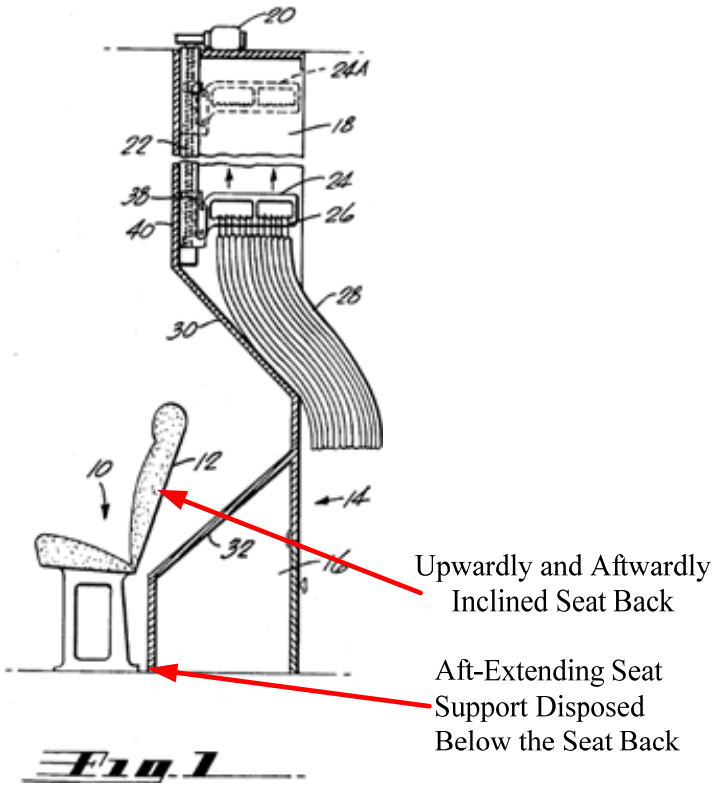
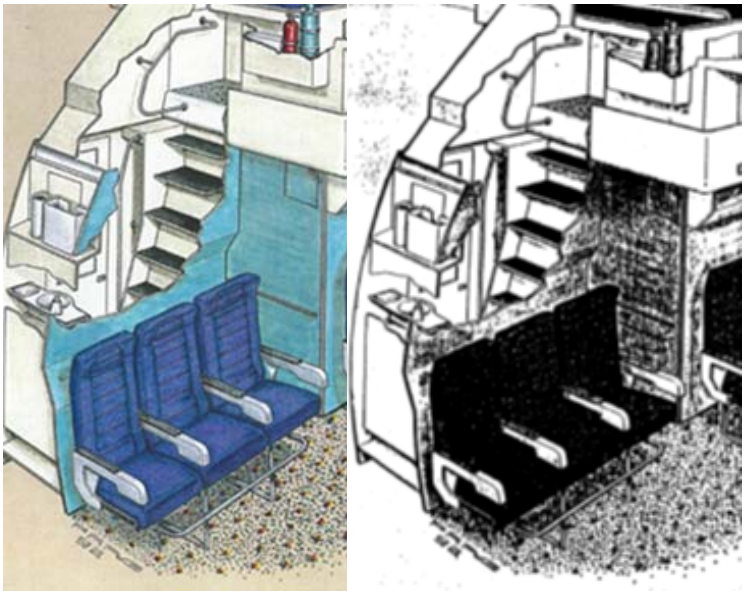


Fig. 1

175. The KLM Crew Rest shows a side elevation of a lavatory enclosure. The enclosure has a contoured wall to allow space for a seat that is located forward of and proximate to the aircraft enclosure. Further, the KLM Crew Rest shows "a forward-facing passenger seat." This seat includes "an upwardly and aftwardly inclined seat back." The seat shown in the KLM Crew Rest could be modified to include a prior art seat with an aft extending seat support. One motivation for such a modification would be to increase the structural strength of the seat supports by providing a longer base.



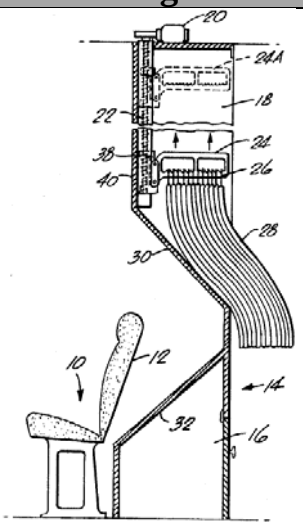
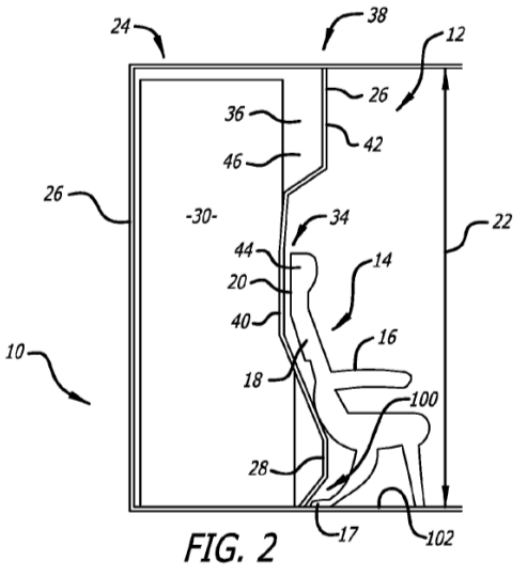
**[*'641 Claim 1 Element A*] a lavatory unit including a forward wall portion and defining an enclosed interior lavatory space, said forward wall portion configured to be disposed proximate to and aft of the passenger seat and including an exterior surface having a shape that is substantially not flat in a vertical plane;**

176. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

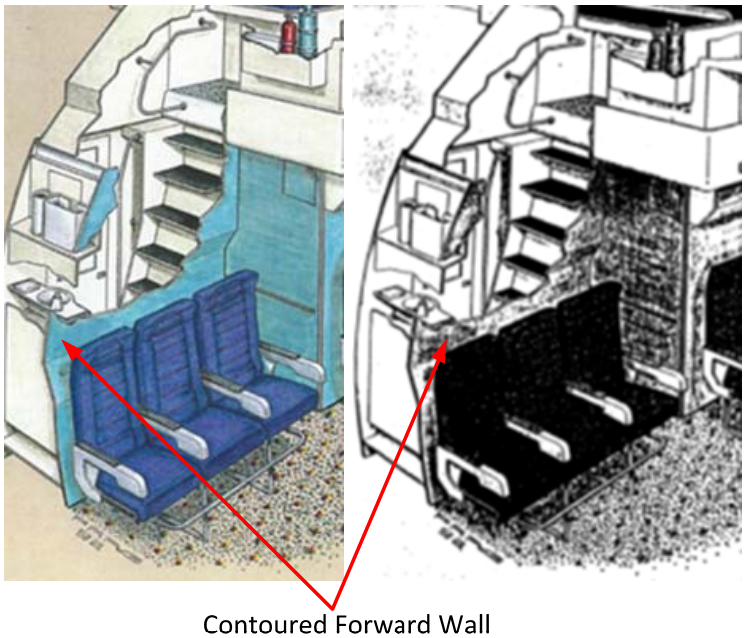
177. As described in detail above, an airplane lavatory was well known in the prior art and the '641 Patent admits that a flat wall lavatory is known in the art. Such a prior art lavatory includes "a forward wall portion and defining an enclosed interior lavatory space."

178. Further, as is shown below, Betts includes a contoured forward wall. In my opinion, a person of ordinary skill in the art would realize that this contoured forward wall could be used in place of a flat forward wall on a prior art flat-walled

aircraft lavatory. One motivation to do so would be to allow the seat be placed further aft in an aircraft cabin.

| Betts Figure 1 | '641 Patent Figure 2 |
|---|---|
|  |  |

179. Further, as is shown below, the KLM Crew Rest includes a contoured forward wall that is used on a lavatory envelope. In my opinion, a person of ordinary skill in the art would realize that this contoured forward wall could be used in place of a flat forward wall on an aircraft lavatory. One motivation to do so would be to allow the seat be placed further aft in an aircraft cabin.




180. The contoured forward wall includes an exterior surface having a shape that is substantially not flat in a vertical plane.

> **[*'641 Claim 1 Element B*] wherein said forward wall portion is shaped to substantially conform to the shape of the upwardly and aftwardly inclined seat back of the passenger seat, and includes a first recess configured to receive at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat therein, and**

181. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

182. As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This seat is received by the contoured wall. Further, the back of this seat is both upwardly and aftwardly inclined.

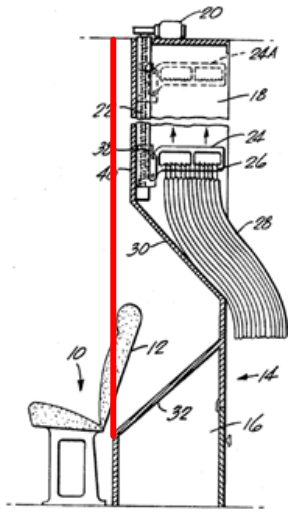
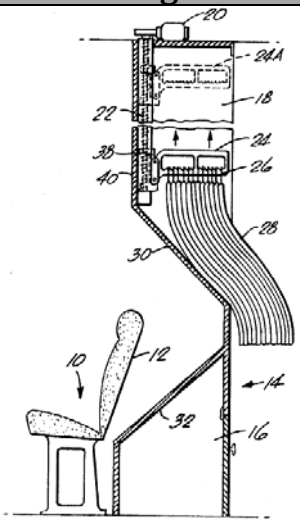
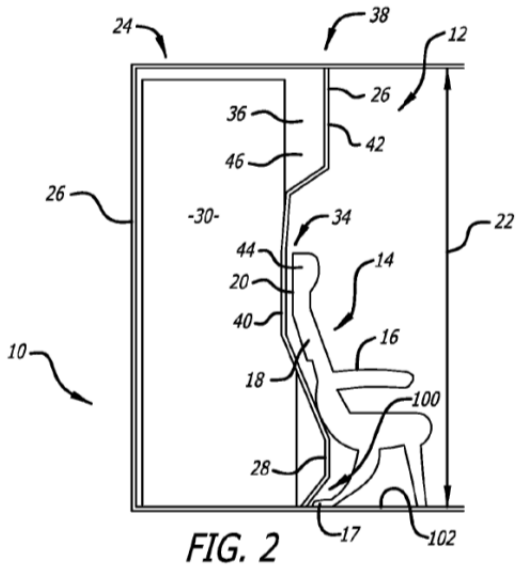



Fig. 1

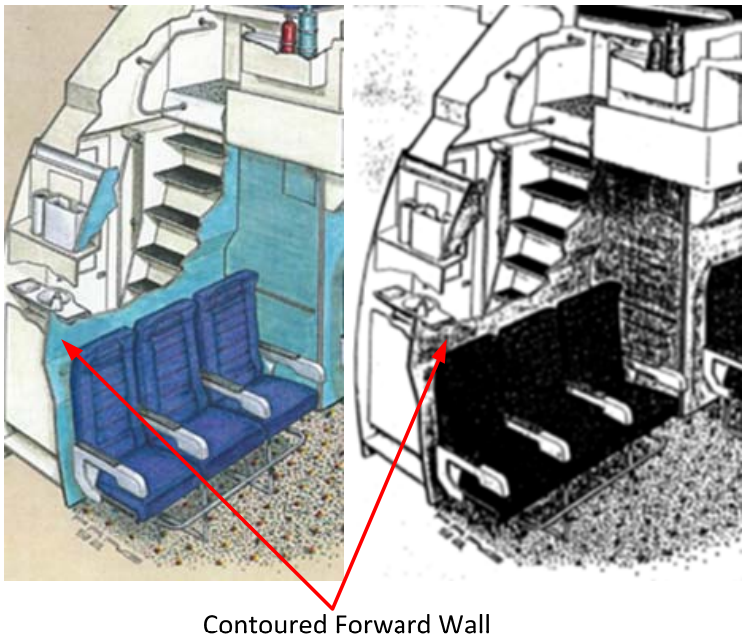
183. In my opinion, the recess shown in Betts "substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back." As shown below, the design of Betts Figure 1 is substantially the same as the design shown in Figure 2 of the '641 Patent.

| **Betts Figure 1** | **'641 Patent Figure 2** |
|---|---|
|   Fig. 1 |   FIG. 2 |

184. The recess in the KLM Crew Rest was designed to allow the last row

of seats positioned in front of the contoured wall to sit further aft in the aircraft, yet still be able to recline. Ex. 1007, ¶13. Thus, if there were no recess, this seat would need to be positioned further forward to allow for recline. Thus, the contoured wall allows for this seat to sit further aft than it otherwise would be able to sit, and therefore receives the seat back. Further, one of ordinary skill in the art would be motivated to restrict the recline of the seat and move the seat into the recess. A motivation for doing so would be to increase the pitch of seats between rows or allow for additional rows of seats.

185. In my opinion, the recess shown in the KLM Crew Rest "substantially conform[s] to the shape of the upwardly and aftwardly inclined seat back of the passenger seat." As Mr. Sobotta explains, the design includes a "recess that would receive the seatback of the row of seats located in front of the entry enclosure." Ex. 1007, ¶ 13. This is shown in the annotated figure below.




**[*'641 Claim 1 Element C*] further includes a second recess configured to receive at least a portion of the aft-extending seat support therein when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess.**

186. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

187. As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This seat is received by the contoured wall. The back of this seat is both upwardly and aftwardly inclined.

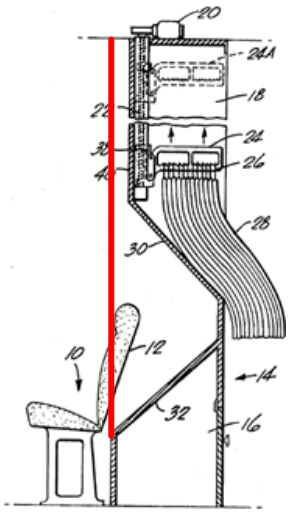
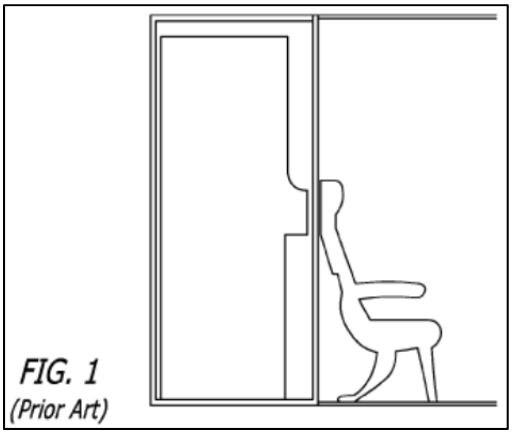



Fig. 1

188. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat forward facing wall of a lavatory to include a recess to allow a passenger seat to be positioned further aft in the aircraft cabin. The challenged patents admit that a seat with an aft extending seat support is well known in the art..



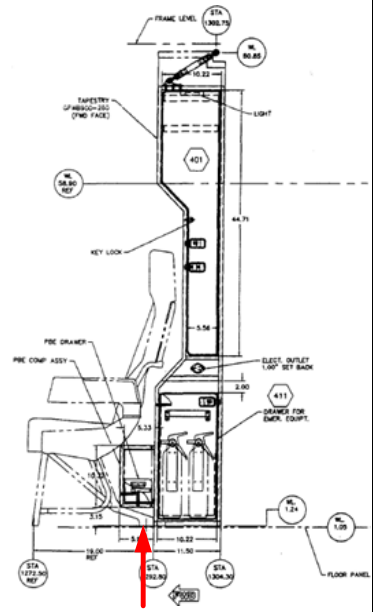
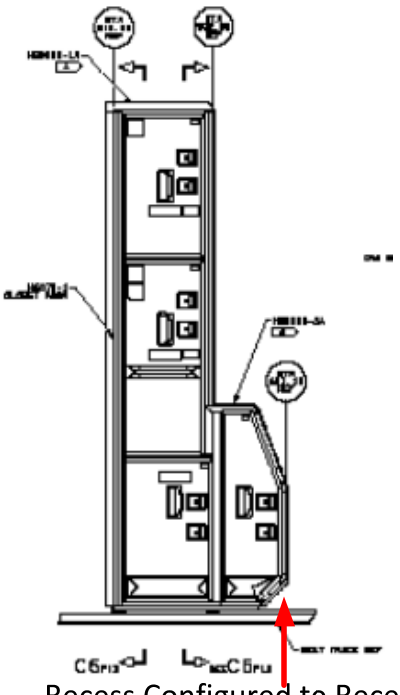
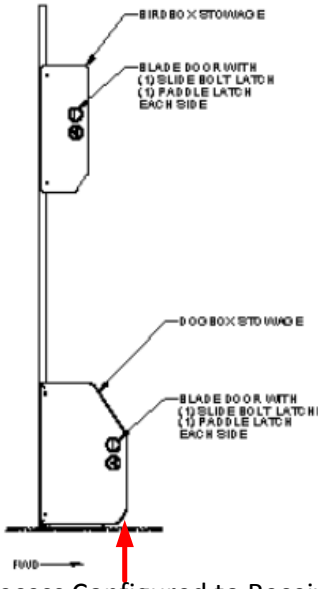

189. As I explain above, a person of ordinary skill in the art would realize that when such a seat is moved further aft, the first component to impact the wall is

the seat back. As I explain above, Betts includes a forward facing recess that receives the seat back.

190. Further, the KLM Crew Rest shows both a passenger seat and a contoured forward partition. As I explain above, the passenger seat is positioned is positioned such that it could not recline without a contoured forward wall, thus this seat is at least partially within the contour and is thus received by the recess.

191. Further, a person of ordinary skill in the art would understand that as the seat is moved further aft, the next component to impact the wall is the aft seat support. A person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. In my opinion, this modification is nothing more than the application of known technology for its intended purpose. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft.

192. As evidence of this modification being well known, I include three examples of prior art enclosures that included a lower recess to accommodate aft-extending seat supports. I understand that these designs are not available as prior art in this proceeding. Thus, I do not rely on these designs as a basis for invalidity. However, these designs inform my opinion by confirming that such a modification was well known in the art, and thus would have been obvious to a person of ordinary skill in the art.

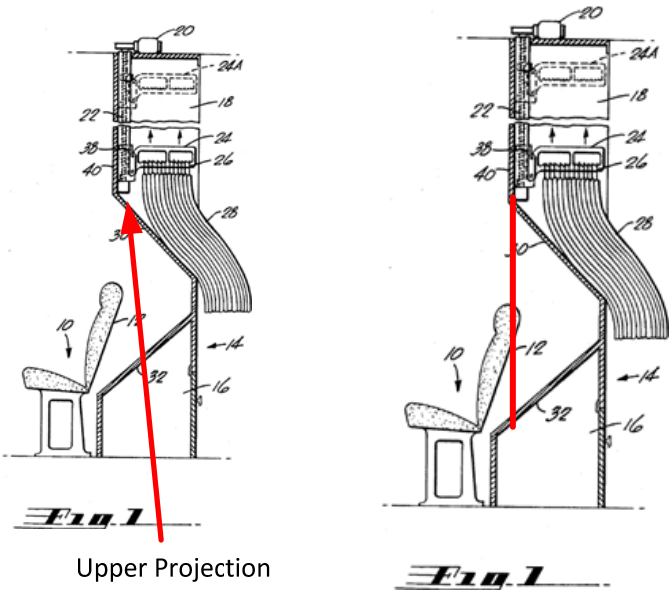
| MD-90 Storage | 737 Storage | 747 Storage |
|---|---|---|
|  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |  Recess Configured to Receive Aft-Extending Seat Support |

**[*'641 Claim 3*] The aircraft lavatory of claim 1, wherein said forward wall portion further includes a projection configured to project over the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received within the second recess.**

193. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

194. As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This shows a projection over the passenger seat back when at least a portion

of the upwardly and aftwardly inclined seat back of the passenger seat is received.




195. The recess in the KLM Crew Rest was designed to allow the last row of seats in front of the contoured wall to sit further aft in the aircraft, yet still be able to recline. Ex. 1007, ¶13. A person of ordinary skill in the art would recognize that when the seat reclines into the recess in the KLM Crew rest, the upper part of the recess will project overtop of the passenger seat back.

196. Further, as I explain above with regard to [‘641 Claim 1, Element C] a person of ordinary skill in the art would be motivated to modify a flat forward wall to include a second recess to receive at least a portion of an aft extending seat support. One motivation for such a modification would be to allow for the seat to be positioned further aft in an airplane cabin.

**[*'641 Claim 4*] The aircraft lavatory of claim 1, wherein said lavatory unit is taller than the passenger seat.**

197. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['476 Claim 1 Element C].

**[*'641 Claim 5*] The aircraft lavatory of claim 1, wherein said forward wall portion includes a lower portion that is disposed under the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received within the second recess.**

198. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest

199. As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This shows a lower portion that is disposed under the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess.

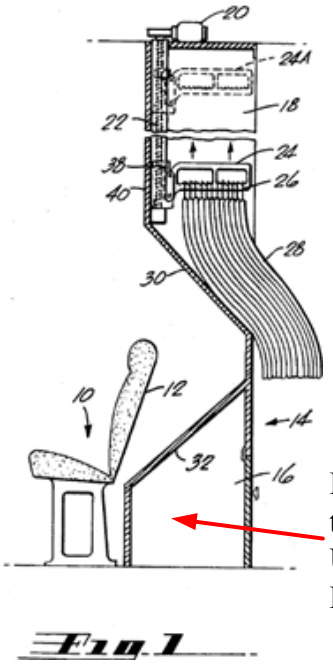
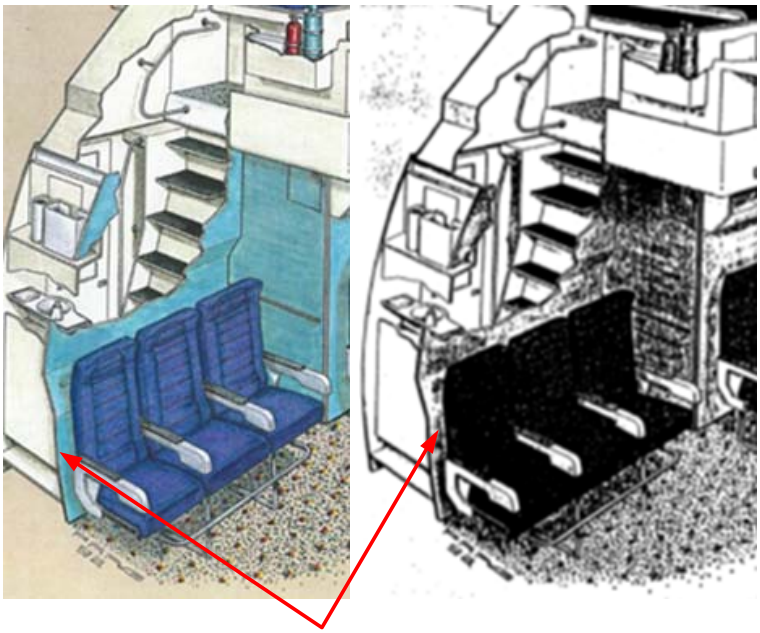



Fig. 1

200. Further, as is shown in the annotated figure below, the KLM Crew Rest shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This shows a lower portion that is disposed under the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess




201. Further, as I explain above with regard to [‘641 Claim 1, Element C] a person of ordinary skill in the art would be motivated to modify a flat forward wall to include a second recess to receive at least a portion of an aft extending seat support. One motivation for such a modification would be to allow for the seat to be positioned further aft in an airplane cabin.

> **[‘*641 Claim 6*] The aircraft lavatory of claim 1, wherein said first recess in said forward wall portion is disposed between an upper wall portion and a lower wall portion.**

202. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

203. As is shown in the annotated figures below, Betts discloses a first recess in said forward wall portion is disposed between an upper wall portion and a

lower wall portion.

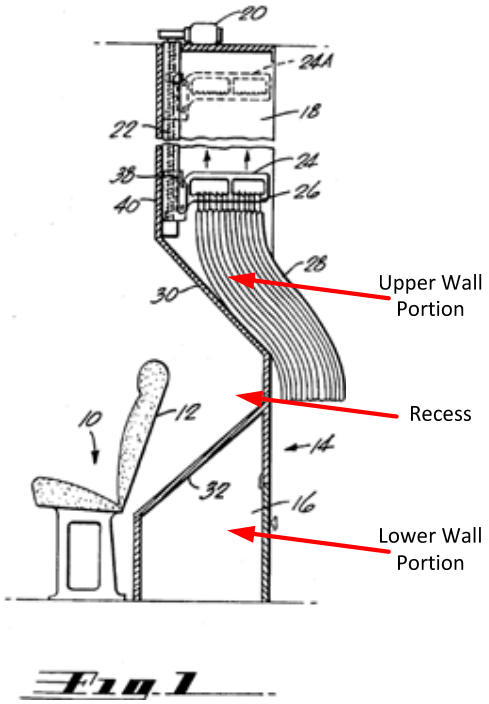
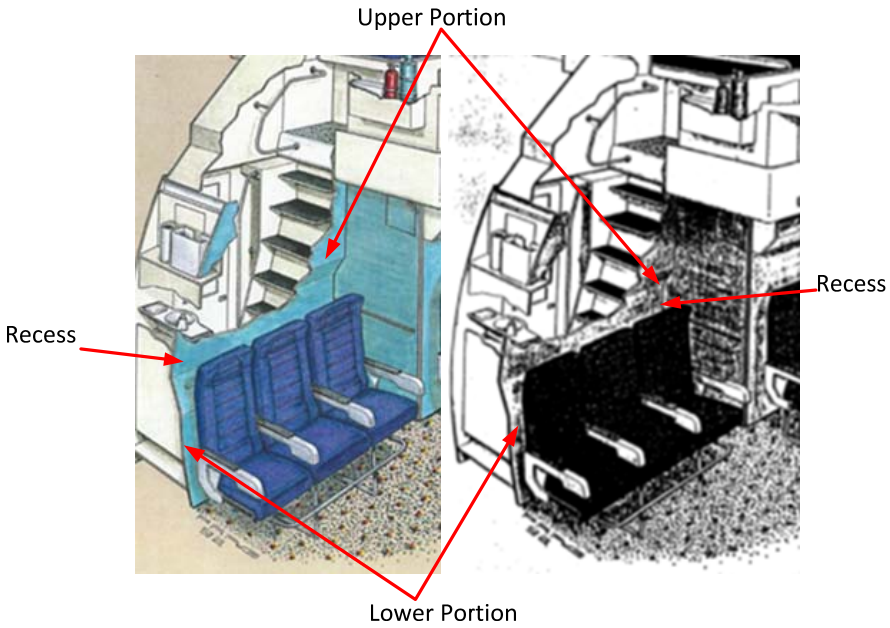



Fig. 1

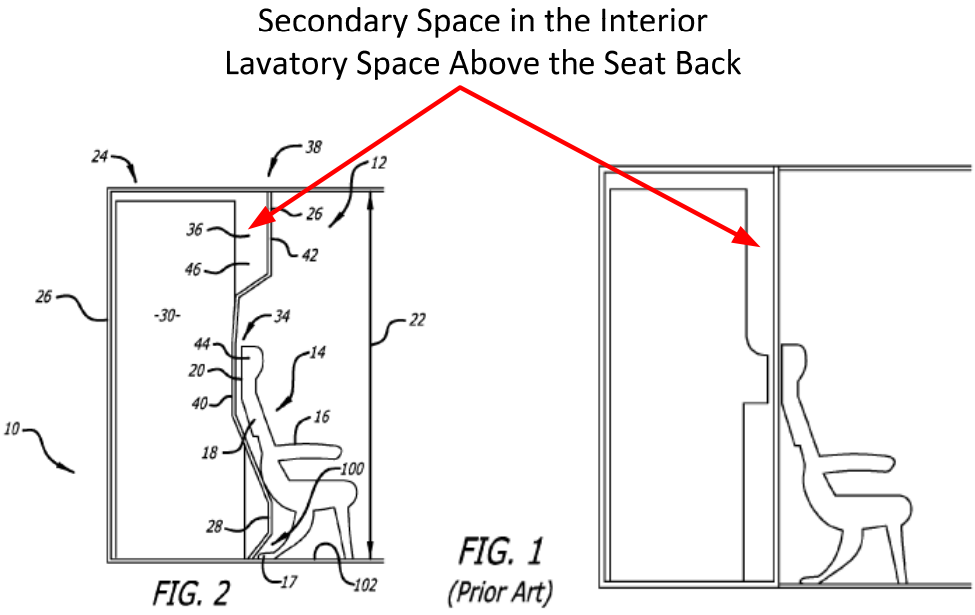
204. Further, as is shown in the annotated figures below, the KLM Crew Rest discloses a first recess in said forward wall portion is disposed between an upper wall portion and a lower wall portion.



**[*'641 Claim 7*] The aircraft lavatory of claim 1, wherein said forward wall portion defines a secondary space in said interior lavatory space above the passenger seat back.**

205. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

206. Figure 1 of the challenged patents shows "a secondary space in said interior lavatory space above the passenger seat back." The specification of the '641 Patent describes "the forward wall portion defines a secondary space 36 in the interior lavatory space." '641 Patent, col. 4:43-45. Such a space is shown in both Figure 1 and Figure 2.




207. Further, a person of ordinary skill in the art would recognize that many prior art lavatories and other enclosures—including the KLM Crew Rest—included secondary storage spaces, e.g., trash receptacles, space for additional

paper towels or toilet paper, space for routing plumbing, etc. A person of ordinary skill in the art would recognize that the enclosed space of a lavatory would continue to have such stowage even with a contoured forward wall, as shown by the KLM Crew Rest.

**[‘*641* Claim 8 Preamble] An aircraft lavatory for an aircraft, the lavatory comprising:**

208. In my opinion this element is obvious i in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents. As I explain above, the ’641 Patent admits that an aircraft lavatory was known in the prior art. *See, e.g*., ’641 Patent at Figure 1.

**[‘*641* Claim 8, Element A] a forward partition; an aft partition; and a lavatory space disposed between the forward partition and the aft partition;**

209. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents. As I explain above, the ’641 Patent admits that an aircraft lavatory was known in the prior art. *See, e.g*., ’641 Patent at Figure 1. This lavatory shows a forward partition, an aft partition, and a lavatory spaced disposed between these two partitions.

**[‘*641* Claim 8, Element B] wherein the forward partition comprises: a forward-extending upper portion; an aft-extending mid-portion; and a forward-extending lower portion; and**

210. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the

KLM Crew Rest.

211. As is shown in the annotated figures below, Betts discloses a forward-extending upper portion; an aft-extending mid-portion; and a forward-extending lower portion.

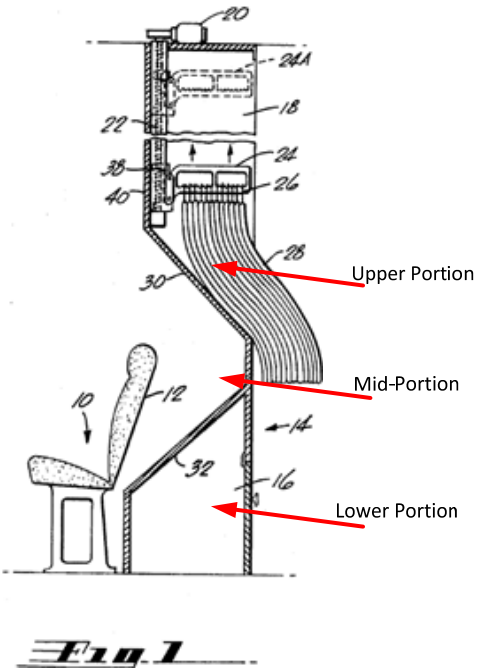
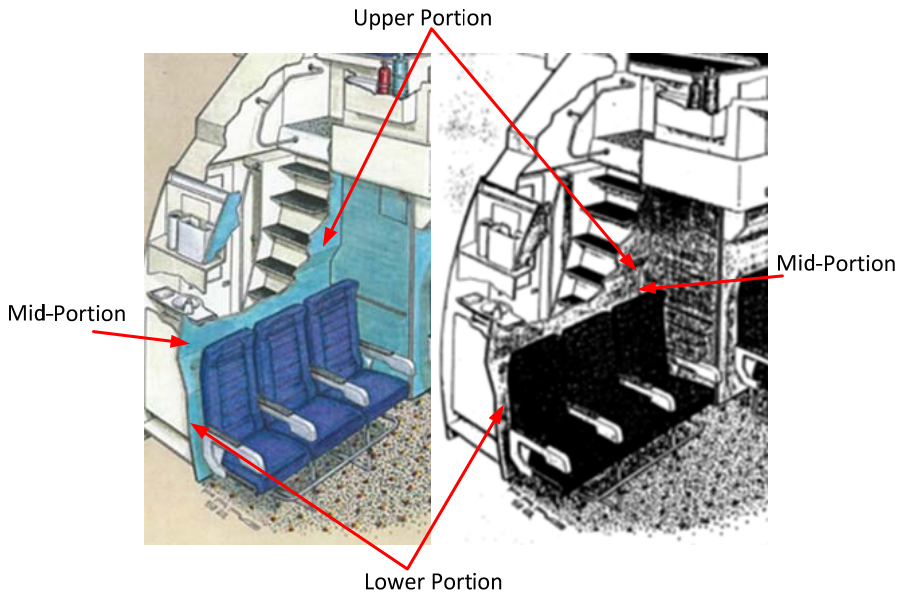



Fig. 1

212. Further, as is shown in the annotated figures below, the KLM Crew Rest discloses a forward-extending upper portion; an aft-extending mid-portion; and a forward-extending lower portion.




**['*641* Claim 8, Element C] wherein the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion combine to define a first aft-extending recess disposed between the upper forward-extending portion and the forward-extending lower portion, and**

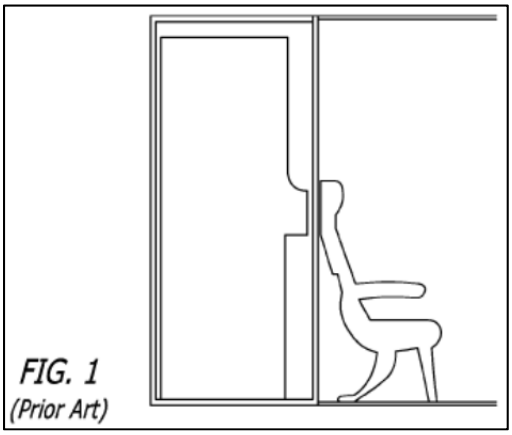
213. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis above of ['641 Claim 8, Element B]

214. As is shown in the annotated Figures above, in both the KLM Crew Rest and Betts "the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion combine to define a first aft-extending recess disposed between the upper forward-extending portion and the forward-extending lower portion."

**[‘*641* Claim 8, Element D] wherein the forward partition further defines a second aft-extending recess proximate to a lower end of the forward partition, the second aft-extending recess being configured to receive at least a portion of an aft-extending seat support of a forward-positioned passenger seat therein.**

215. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest

216. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat forward facing wall of a lavatory to include a recess to allow a passenger seat to be positioned further aft in the aircraft cabin. A seat with an aft extending seat support is well known in the art. *See* Challenged Patents at Figure 1.




217. A person of ordinary skill in the art would realize that when such a seat is moved further aft, the first component to impact the wall is the seat back. As I explain above, both Betts and the KLM Crew Rest include a forward facing recess that receives the seat back.

218. As the seat is moved further aft, the next component to impact the wall is the aft seat support. A person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. Such a modification is nothing more than the application of known technology for its intended purpose. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft..

219. Further, as I discuss above with regard to [‘641, Claim 1, Element C] a person of ordinary skill in the art would recognize that such a modification was well known in the art.

> **[*‘641 Claim 9*] The aircraft lavatory according to claim 8 wherein the first aft extending recess defined by the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition is configured to receive an aft-extending seat back of the forward positioned passenger seat.**

220. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

221. As I describe above with regard to [‘641 Claim 8, Element D] Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. Thus, this seat is received by the contoured wall. Further, the back of this seat is both upwardly and aftwardly inclined.

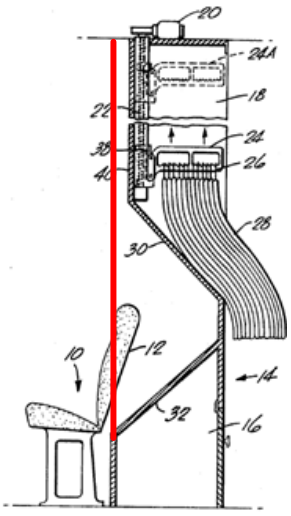


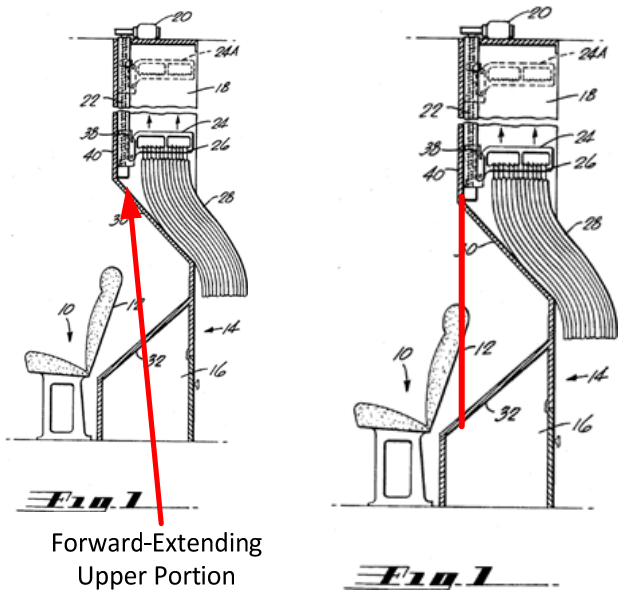

Fig. 1

222. Similarly, as I explain above, The curved forward facing wall shown in the KLM Crew Rest advantageously provides additional space to locate a seat further aft in an aircraft. The recess in the KLM Crew Rest was designed to allow the last row of seats in front of the curved wall to sit further aft in the aircraft, yet still be able to recline. Sobotta Declaration, at ¶ 13. Thus, the KLM Crew Rest includes a recess configured to receive an upwardly and aftwardly inclined seat back of a passenger seat.

> **[*'641 Claim 10*] The aircraft lavatory according to claim 9 wherein said forward -extending upper portion is configured to project over at least a portion of the forward-positioned passenger seat.**

223. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

224. As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. This shows a projection over the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received.



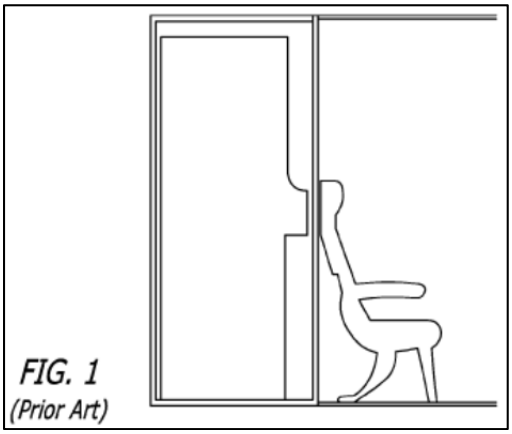

225. As I explain above, the seat in the KLM crew rest is reclines into the contour in the forward wall. Thus, at least part of the forward wall is protrudes overtop of the upwardly and aftwardly reclined seat back.

**[*'641 Claim 12*] The aircraft lavatory according to claim 9 wherein said lavatory is taller than the forward-positioned passenger seat.**

226. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis discussed above with regard to ['476 Claim 1 Element C].

**[*'641 Claim 13*] The aircraft lavatory according to claim 8 wherein the aft partition is substantially vertical and substantially planar.**

227. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents. As shown in Figure 1 of the Challenged Patents, the aft partition is substantially vertical and substantially planar.

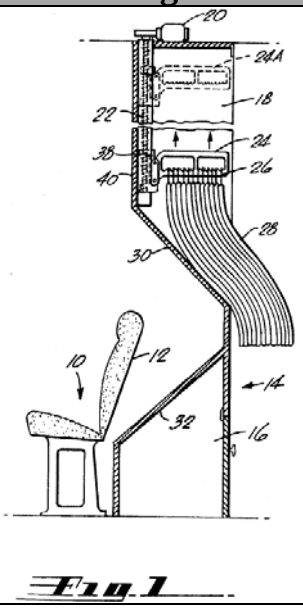
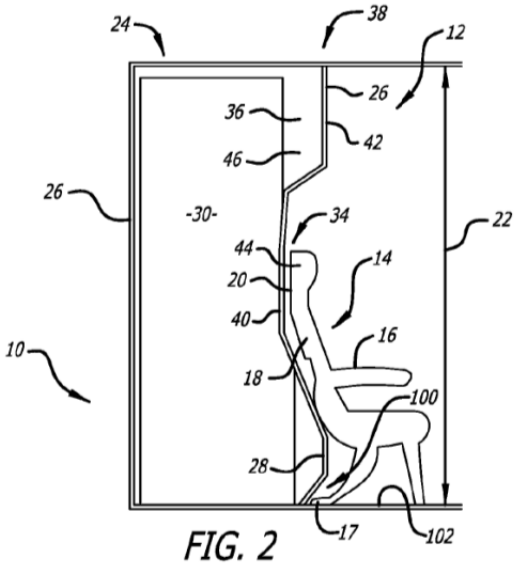



**[*'641 Claim 14*] The aircraft lavatory according to claim 8 wherein the width of the lavatory space disposed between the forward partition and the aft partition comprises an upper width, a lower width, and a mid-width, and wherein the upper width and the lower width are both substantially wider than the mid-width.**

228. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

229. As discussed above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to include a contoured forward wall. A person of ordinary skill in the art would recognize that such a modification could

impact the interior width of the lavatory. This is clear from the positioning of the recess shown in Figure 1 of Betts, which is substantially the same as Figure 2 of the Challenged Patents. To the extent that Figure 2 of the Challenged Patents describes this limitation, the limitation is also disclosed by Figure 1 of Betts.

| Betts Figure 1 | '641 Patent Figure 2 |
|---|---|
|  |  |

230. Further, as discussed above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to include a contoured forward wall. A person of ordinary skill in the art would recognize that such a modification could impact the interior width of the lavatory. This is clear from the positioning of the recess shown in the KLM Crew Rest, which is substantially the same as Figure 2 of the Challenged Patents. Thus, in my opinion, to the extent that Figure 2 of the Challenged Patents describes this limitation, the limitation is also disclosed by the KLM Crew Rest.

**[*'641 Claim 15*] The aircraft lavatory according to claim 8 wherein the upper forward-extending portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition form a substantially continuous surface.**

231. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

232. As shown in Figure 1 of Betts, the upper forward-extending portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition form a substantially continuous surface.

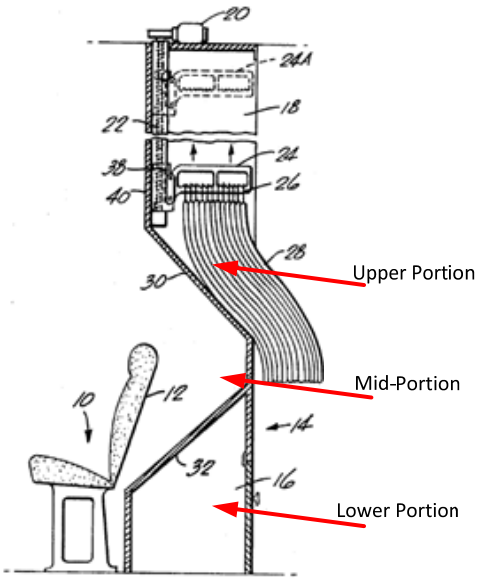
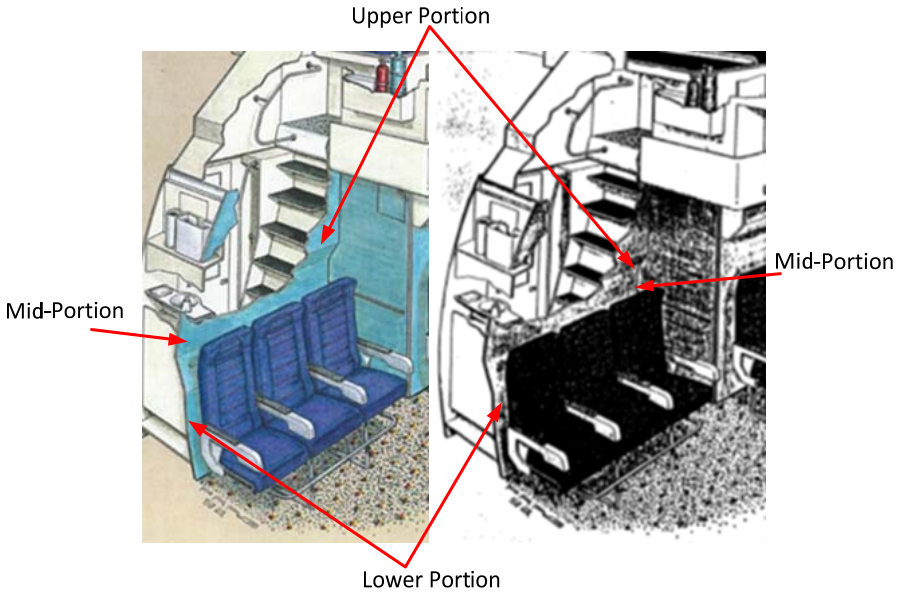



Fig. 1

233. Further, as shown in the annotated Figure of the KLM Crew Rest below, the upper forward-extending portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition form a substantially

continuous surface.




**[*'641 Claim 16*] The aircraft lavatory according to claim 8 wherein said first aft-extending recess extends along substantially a full width of said forward partition.**

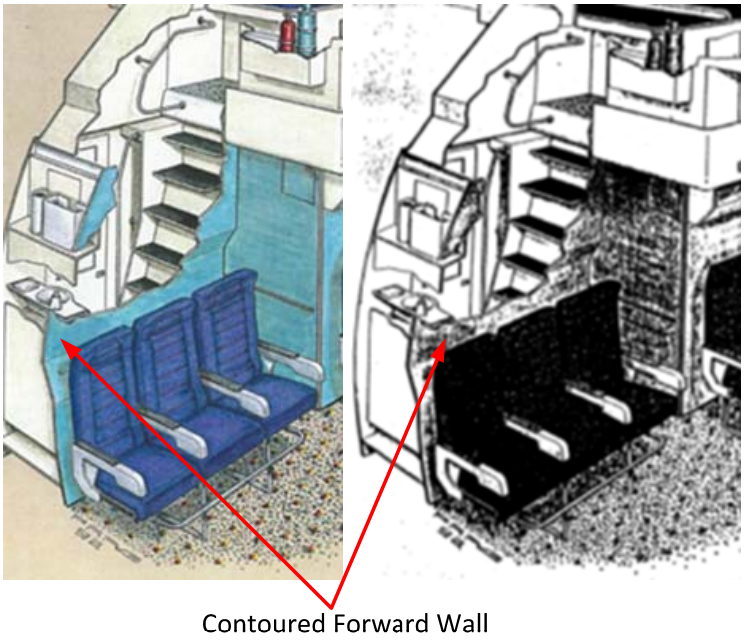
234. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest

235. Figure 1 of Betts shows a side elevational view of the coat closet enclosure. Betts, 1:58-59. The side elevational view shows the coat closet enclosure from a horizontal plane beside the enclosure. One of ordinary skill in the art would understand from Figure 1 that the recess extends the full width of the forward wall.

236. Further, nothing in Betts suggests that the recess only extends a

portion of the width of the forward wall. One of ordinary skill in the art would be motivated to extend the recess the full width of the forward wall in order to accommodate the full row of seats installed immediately forward of the wall. In fact, the commercial embodiments of the Betts closet (found on DC-10s) had a recess that extended the full width of the forward partition.

237. In my opinion, the KLM Crew rest shows a recess that extends along substantially the full width of the of the contoured forward partition.

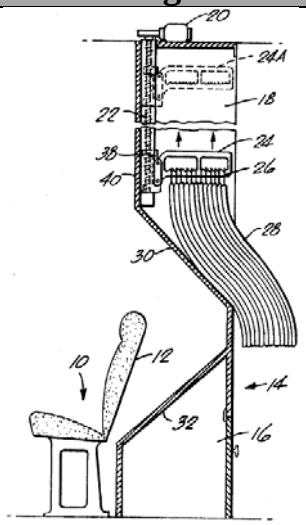
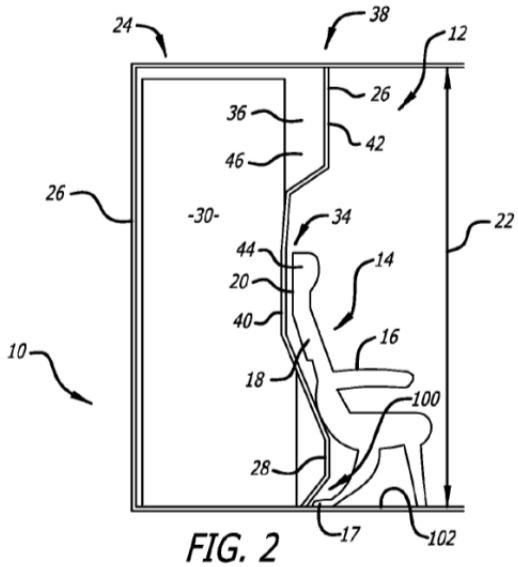



**[*'641 Claim 17*] The aircraft lavatory according to claim 8 wherein said lavatory has a top, a bottom, a height therebetween, and a middle therebetween, said lavatory has varying lengths along the height of the lavatory, and said lavatory is longer at the top of the lavatory than at the bottom of the lavatory.**

238. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the

KLM Crew Rest.

239. The prior art lavatory shown in Figure 1 of the Challenged Patents shows a lavatory that has a top, a bottom, a height therebetween, and a middle therebetween. Further, as discussed above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to include a contoured forward wall. A person of ordinary skill in the art would recognize that such a modification could impact the interior of the lavatory, e.g., the width or the lengths along the height of the lavatory. This is clear from the positioning of the recess shown in Figure 1 of Betts, which is substantially the same as Figure 2 of the '641 Patent. To the extent that Figure 2 of the '641 Patent describes this limitation, the limitation is also disclosed by Figure 1 of Betts. Further, claim 8 of Betts even requires "… a tilt back seat in front of said closet whereby said back tilts under said sloping portion and clothes on said rack are moved vertically for storage over said seat." Thus, Betts contemplates a closet with varying dimensions, including one wherein the top of the closet extends over the seat back.

| Betts Figure 1 | ’641 Patent Figure 2 |
| --- | --- |
|  |  |

240. Similarly, a person of ordinary skill in the art would recognize on review of a flat wall lavatory as modified by the KLM Crew Rest would recognize that such a modification would impact the interior of the lavatory, e.g., the width or the lengths along the height of the lavatory. This is clear from the positioning of the recess shown in the KLM Crew Rest which is substantially the same as Figure 2 of the Challenged Patents. Thus, in my opinion, to the extent that Figure 2 of the ’641 Patent describes this limitation, the limitation is also disclosed by the KLM Crew Rest.

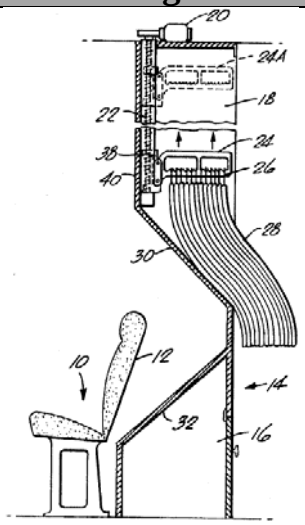
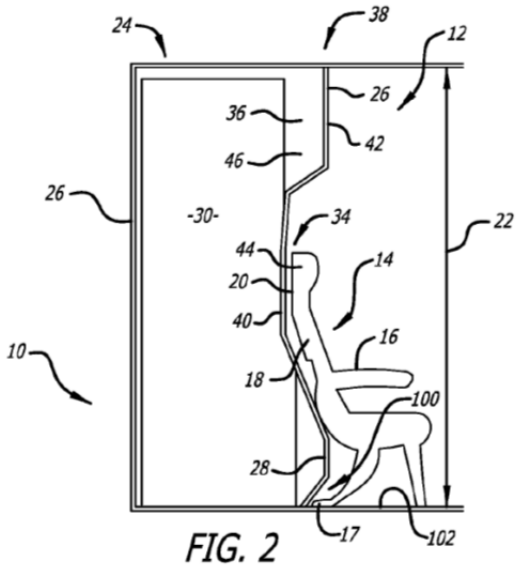
### D. '742 Patent, Claims 8 and 10-16 are Obvious

**[*'742 Claim 8 Preamble*] A method for reducing a volume of unusable space in a cabin area of a passenger aircraft, comprising:**

241. I am informed that the preamble may not be a limitation. However, to the extent that it is a limitation, in my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

242. The Challenged Patents do not define the term "unusable space," however, by any reasonable definition for this term, Betts or the KLM Crew Rest render the preamble obvious.

243. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Figure 1 of Betts is a side elevation that shows an assembly of an enclosure that is located immediately aft of and adjacent to a passenger seat and is nearly identical to Figure 2 of the Challenged Patents. The Betts wall allows the seat to be positioned further aft so that it is received by the recess. Applying the forward wall of Betts to a lavatory would reduce a volume of unusable space in the cabin of a passenger aircraft.

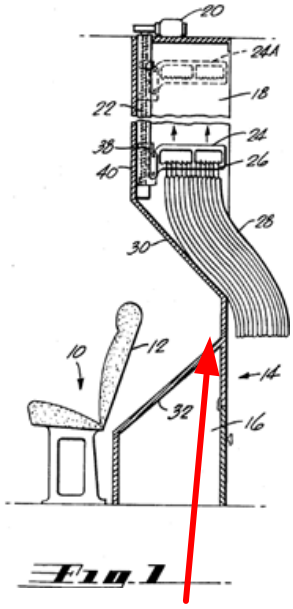
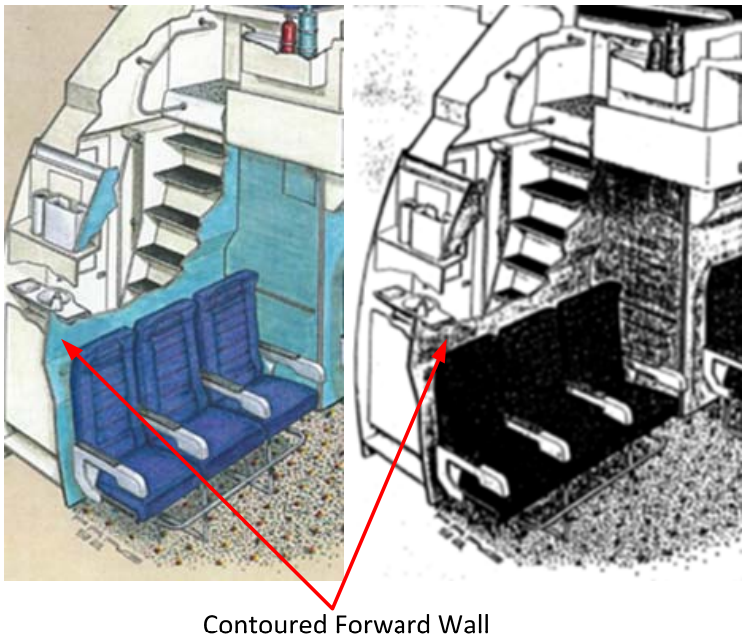
| Betts Figure 1 | Challenged Patents Figure 2 |
| --- | --- |
|  |  |

244. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. The KLM Crew Rest shows a lavatory envelope. The enclosure has a curved wall to allow space for a seat that is located forward of and proximate to the aircraft enclosure to be positioned further aft and be received by the recess.

245. As I explain above, each of these designs allows for passenger seats to be placed further aft than they could be placed with a flat wall. This allows for additional seating in the cabin of an aircraft when installed and reduces the volume of unusuable space in the cabin of the aircraft.

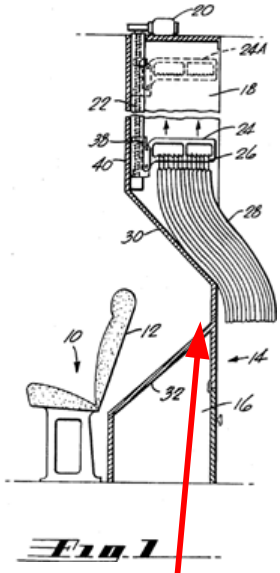
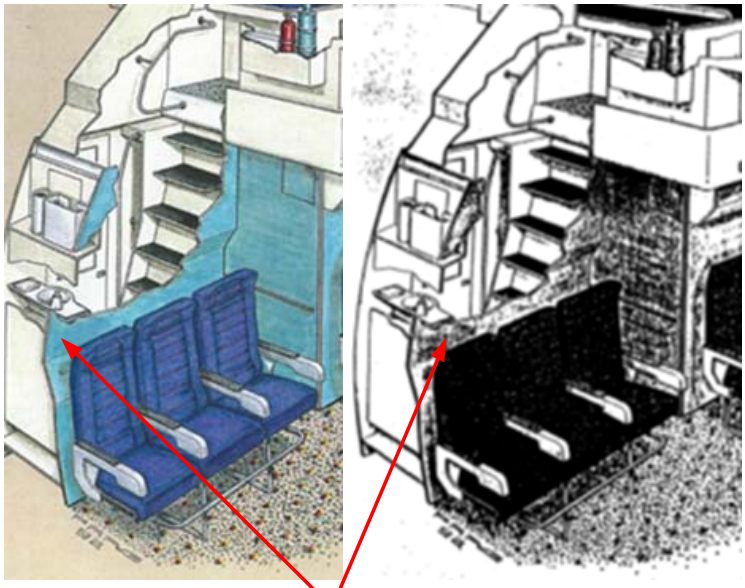
**[*'742 Claim 8 Element A*] replacing at least a previously-installed forward partition of a pre-existing aircraft lavatory in the cabin area of the passenger aircraft with a contoured forward partition, wherein an outward facing vertical surface of the previously installed forward partition is substantially flat, and**

246. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. As is shown in the diagrams below, each of Betts and the KLM Crew Rest includes a contoured forward partition. Further, any of these contoured forward partitions could replace a flat forward partition.

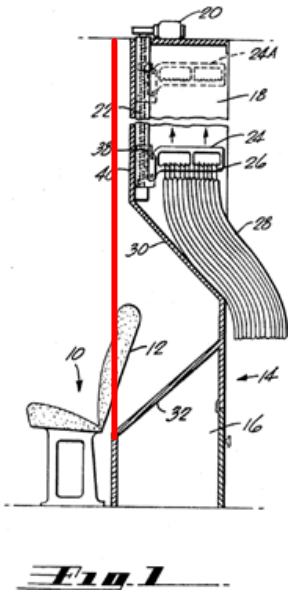
| Betts | KLM Crew Rest |
| --- | --- |
|  Contoured Forward Wall |  Contoured Forward Wall |

**[‘*742 Claim 8 Element B*] the contoured forward partition comprises at least one first recess configured to receive at least a portion of an upwardly and aftwardly inclined seat back of a passenger seat therein, and**

247. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. As is shown in the diagrams below, each of these references discloses a forward wall that includes a recess configured to receive an upwardly and aftwardly inclined seat back of a passenger seat.

| Betts | KLM Crew Rest |
| --- | --- |
|  Curved Wall Configured to Receive a Seat Back |  Contoured Forward Wall Configured to Receive a Seat Back |

248. With regard to Betts, the seat and the seat support are positioned further aft in the cabin, which is clear because the seat is plainly within the recess in the wall. Thus, the recess receives the seat back. This is shown in the annotated figure below.



249. With regard to the KLM Crew Rest, the recess in the KLM Crew Rest was designed to allow the last row of seats positioned in front of the curved wall to sit further aft in the aircraft, yet still be able to recline. Sobotta Declaration, at ¶ 13. Thus, if there were no recess, this seat would need to be positioned further forward to allow for recline. Thus, the curved wall allows for this seat to sit further aft than it otherwise would be able to sit, and therefore receives the seat back. Further, one of ordinary skill in the art would be motivated to restrict the recline of the seat and move the seat into the recess. A motivation for doing so would be to increase the pitch of seats between rows or allow for additional rows of seats.

**[‘*742 Claim 8 Element C*] at least one second recess configured to receive at least a portion of an aft-extending seat support of the passenger seat therein; and**

250. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis above of [‘641 Claim 1, Element C].

**[‘*742 Claim 8 Element D*] installing the passenger seat in front of the contoured forward partition; wherein, upon installation, the at least one first recess receives at least a portion of the upwardly and aftwardly inclined seat back, and the second recess receives at least a portion of the aft-extending seat support,**

251. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the

KLM Crew Rest. I incorporate my analysis discussed above with regard to [‘742 Claim 8 Elements B and C] and [’641 Claim 8 Element D].

252. Further, as I explain above, the only seat shown in the Challenged Patents is admitted to be prior art. And each of Betts and the KLM Crew Rest discloses an airplane seat installed forward of a contoured forward wall. Further, airplane seats were well known in the art. *See, e.g.*, Bentley.

**[‘*742 Claim 8 Element E*] thereby reducing the volume of unusable space in the cabin area by reducing or eliminating gaps that existed between the previously-installed forward wall and the passenger seat.**

253. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest.

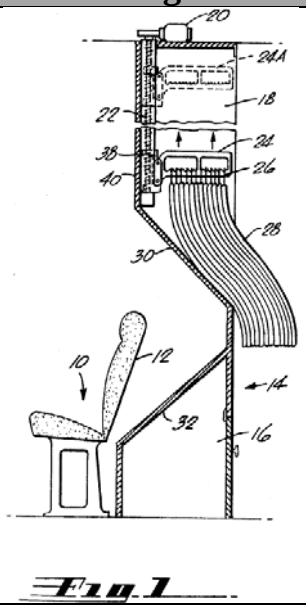
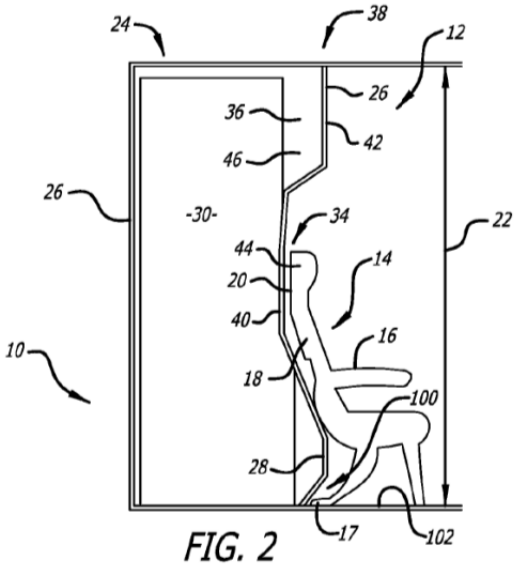
254. The term “unusable space” is not defined or explained in the Challenged Patents. This term is unclear, as all space in an airplane is usable, e.g., a coat or reading material could be place in the space between a seat and a forward facing wall. However, as best as I understand the term “unusable space,” this element is obvious in view of a flat wall lavatory modified by one of Betts or the KLM Crew Rest. I incorporate my analysis above of [‘742 Claim 8 Preamble].

**[‘*742 Claim 10*] The method of claim 8, wherein the at least one first recess substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back.**

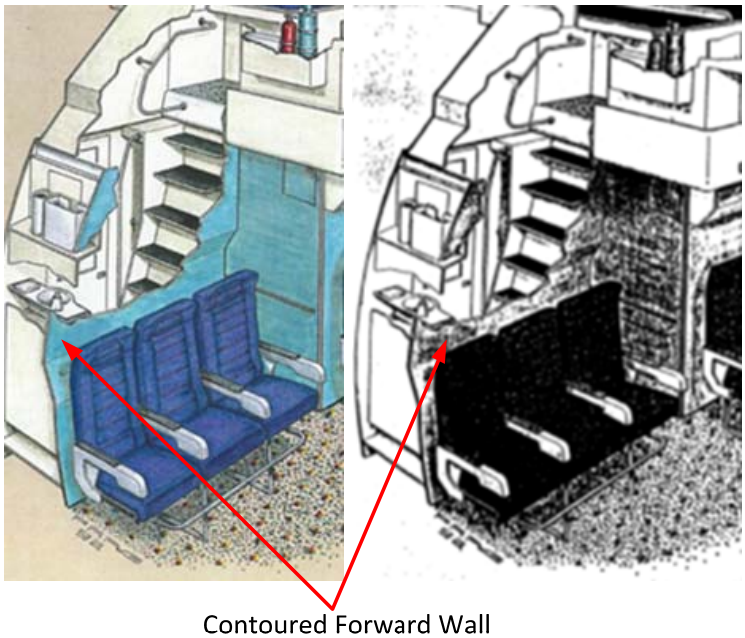
255. In my opinion this element is obvious in view of a flat wall lavatory

and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate herein my analysis of [‘742 Claim 8 Element B].

256. In my opinion, the recess shown in Betts “substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back.” For example, as shown below, the design of Betts Figure 1 is substantially the same as the design shown in Figure 2 of the Challenged Patents.

| Betts Figure 1 | Challenged Patents |
|---|---|
|  |  |

257. Further, the recess shown in the KLM Crew Rest “substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back.” As Mr. Sobotta explains, the design includes a “recess that would receive the seatback of the row of seats located in front of the entry enclosure.” This is shown in the annotated figure below.

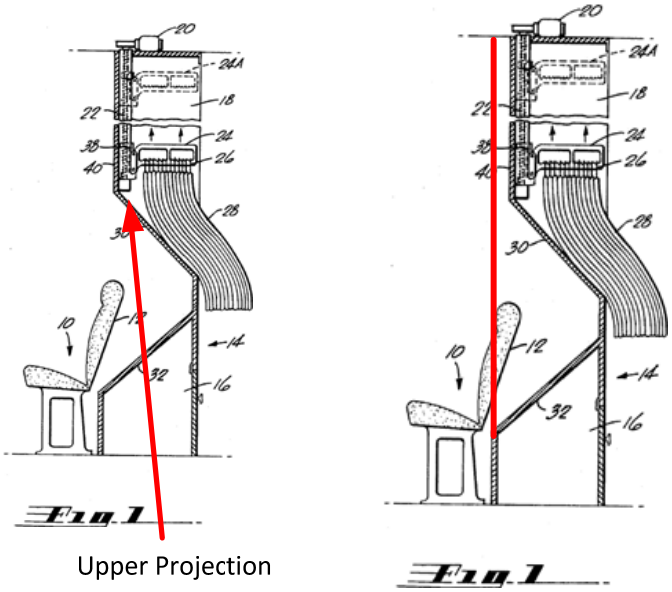



258. With regard to "a contour of an aft surface of the upwardly and aftwardly inclined seat back," the only seat disclosed in the '742 patent is admitted to be prior art.

> **['*742 Claim 11*] The method of claim 8, wherein the contoured forward partition further comprises an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back.**

259. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

260. As is shown in the annotated figures below, Betts discloses "an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back."




261. Further, as I explain above, the seat in the KLM crew rest is reclines into the contour in the forward wall. Thus, at least part of the forward wall is protrudes overtop of the upwardly and aftwardly reclined seat back.

**[‘*742 Claim 12*] The method of claim 11, wherein the upper projection is configured to abut an upper surface of the cabin area.**

262. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. As is shown in the annotated Figures in my analysis of [‘742 Claim 11], the upper projection shown in each of these figures abuts an upper surface of the cabin area, e.g., the interior ceiling of the aircraft.

**[‘*742* Claim *13*] The method of claim 11, wherein the upper projection defines an interior storage space in the aircraft lavatory.**

263. In my opinion this element is obvious in view of a flat wall lavatory

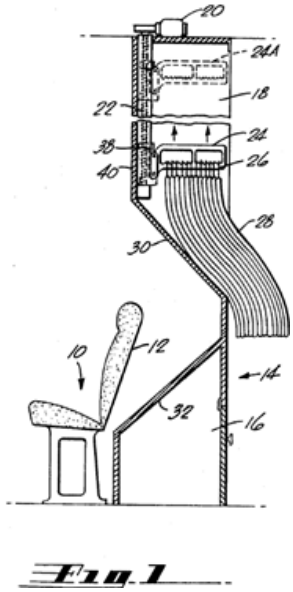
and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest. I incorporate my analysis of [‘641 Claim 7].

**[‘*742 Claim 14*] The method of claim 8, wherein the upwardly and aftwardly inclined seat back is in an upright and not a reclined position.**

264. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents as modified by Betts or the KLM Crew Rest.

265. The seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the Challenged Patents. Thus, in my opinion this seat is in an unreclined position.

266. A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew rest is positioned further aft than it could be positioned without the recess. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added.

| Betts | KLM Crew Rest |
|---|---|
|  |   |

**[‘*742 Claim 15*] The method of claim 8, wherein the at least one first recess extends along substantially a full width of the contoured forward partition.**

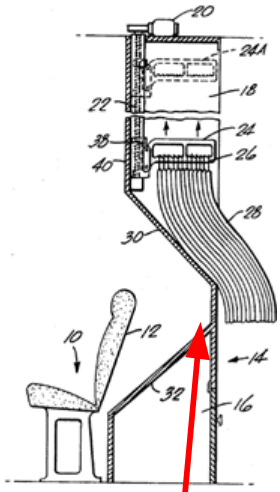
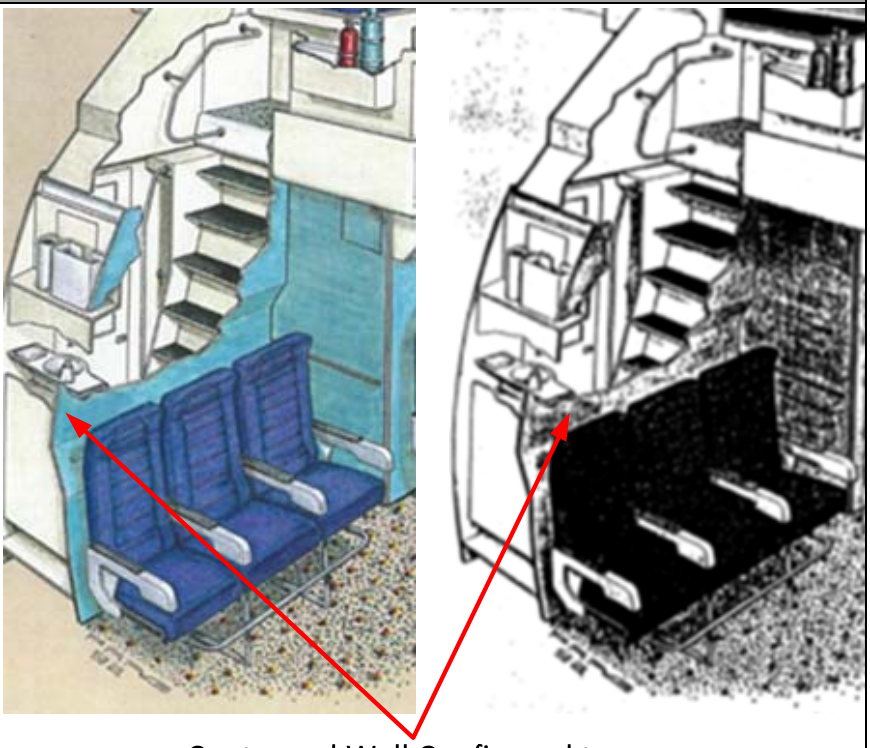
267. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest. I incorporate my analysis above of [‘641 Claim 16].

**[‘*742 Claim 16*] The method of claim 8, wherein replacing the previously-installed forward partition with the contoured forward partition permits the aft-extending seat support to be positioned farther aft in the cabin area than was possible when the previously-installed forward partition was installed in the cabin area.**

268. In my opinion this element is obvious in view of a flat wall lavatory and seat shown in Figure 1 of the Challenged Patents, as modified by Betts or the KLM Crew Rest

269. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Further, it is clear that the seat shown in Betts is positioned further aft than it could be positioned if there were no recess in the forward wall because the seat back is within the recess. Thus the recess is configured to receive the seat back. Further, as I noted above, the seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the Challenged Patents. Thus, in my opinion this seat is in an unreclined position.

270. As I explain above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew rest is positioned further aft than it could be positioned without the recess. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added.

| Betts | KLM Crew Rest |
|---|---|
|  <br>Fig. 1<br>Curved Wall Configured to Receive a Seat Back |  <br>Contoured Wall Configured to Receive a Seat Back |

271. Further, as I explain above, it would be obvious to modify a prior art flat wall lavatory to include a second recess. I incorporate my analysis above of [‘641 Claim 1, Element C].

## IX. SUMMARY

272. I note that my analysis is continuing and that I may modify or supplement my conclusions as I receive additional information. I declare under penalty of perjury that the foregoing Declaration is true and correct.

Dated: April 12, 2017

AJ Anderson

Alan J. Anderson

## Exhibit A – Anderson CV

Professional Experience

The Mission Zero Foundation
Founding Board Member, 2015 to Present

The Ray C Anderson Foundation
Advisory Board Member, 2013 to Present

Independent Consultant
The Boeing Company, 2012-2014
C&D Zodiac, 2012-2014

The Boeing Company

- 1968 to 1978; Design Engineer, then Lead Engineer (747, 707, 727, 737 and 757 Programs) responsible for developing Engineering Detail, Assembly and Installation Drawings, Component and System Specifications, Test and Certification Plans. Coordinating Airline Requirements for Cargo Handling Equipment, Passenger and Crew Oxygen Systems, Galleys, Seats and Lavatories.
- 1978 to 1988; Engineering Design Manager (727, 737, 757 and 7J7 Programs) for Oxygen, Insulation, Interior Linings, Waste, Water, Cargo, Galleys and Lavatories.
- 1978 to 1992; Chief Engineer Payload Systems Advanced Programs, Overseeing Technology and New Product Development for Payload Systems.
- 1992 to 1999; Chief Engineer 747 and 767 Payload Systems, overseeing all Engineering activity for Payload Systems
- 1999 to 2011; Chief Engineer and Director of Engineering, Payload Systems, overseeing Engineering staffing, technical development, and commonality for both parts and processes across all Boeing Airplane Interiors
- 2003 to 2011; Chief Engineer, Interiors, 787 Program, developing requirements, budgets and schedules for the program and being responsible to bring the 787 Interior to market.

Education
University of Washington
Bachelor of Science, Mechanical Engineering, 1964 to 1968
Dartmouth College
National Science Foundation Student, Engineering Design. 1965
Columbian Business School
Executive Education, 1996

Professional Activities and Associations

- US (Air Transport Association) Representative to the European Cabin Safety Working Group, 1991 to 1992.